SD/SW

NATIONAL CADET CORPS

UNITY & DISCIPLINE

CADET'S HAND BOOK (ARMY)

SPECIALISED SUBJECT

SD / SW (ARMY) SPECIALISED SUBJECTS

BLOCK SYLLABUS

S.No	Subject	Periods			
		First Year	Second Year	Third Year	Total Periods
1	Armed Forces	3	3	3	9
2	Map Reading	9	9	6	24
3	Field Craft & Battle Craft	8	8	6	22
4	Introduction to Infantry Weapons & Equipment	3	2	1	6
5	Military History	7	8	8	23
6	Communication	1	1	4	6
Total		**31**	**31**	**28**	**90**

SD/SW (ARMY) SPECIALISED SUBJECTS

INDEX

INDEX

CHAPTER 1 : ARMED FORCES : ARMY, POLICE AND CENTRAL ARMED POLICE FORCES (CAPF)

INTRODUCTION

1. Defence Services plays a vital role in maintaining sovereignty and territorial integrity of our nation and responsibility is with Ministry of Defence along with Ministry of Home Affairs. All elements of national defence and national security strive in achieving the assigned role and task. A Defense University has also been established in Delhi. Based on the major wars fought, struggles and the present-day relations with our neighbouring countries and strategic allies, an overview of the structure shows how finely organisations have emerged to meet India's national security, integration and for maintenance of law and order requirements. It is essential that as a Cadet of NCC understands the basic organisation of our Armed Forces, Police organisations and Central Armed Police Forces of our country.

Armed Forces

ARMY

2. Indian Army is the land-based branch and the largest component of the Indian Armed Forces and The President of India is the Supreme Commander. It is headed by The Chief of Army staff (COAS), who is a four-star general. The Chief of Army Staff is responsible for all Army activities and senior officers who assist him are: -

(a) Vice Chief of Army Staff.
(b) Three Deputy Chiefs of Army Staff.
(c) Principle Staff Officers (PSOs).
(d) Heads of Arms and Services.
(e) Field Army (Commands).

Command Headquarters

3. Command Headquarters is commanded by an officer of the rank of 'Lieutenant General', who is known as the Army Commander or General Officer Commanding – in - Chief. The whole country is divided into eight theatre Commands who have subordinate formations under them. These are: -

Command Insignia	Command Name	Headquarters
	Integrated Headquarters of Ministry of Defence (Army)	New Delhi
	Central Command	Lucknow
	Eastern Command	Kolkata
	Northern Command	Udhampur
	Southern Command	Pune
	South Western Command	Jaipur
	Western Command	Chandimandir
	Army Training Command	Shimla
	Andaman & Nicobar Command	Andaman
	Strategic Force Command	New Delhi

NAVY

4. Our country is covered almost from three sides with water with a coastline of approximately over 6000 Km. The sea around India has impact / effect on India's freedom, trade, commerce, and culture. The Indian Navy (Bhartiya Nau Sena) is the naval branch of the Indian Armed Forces. The President of India serves as Supreme Commander of the Indian Navy. The Chief of Naval Staff, usually a four-star officer in the rank of Admiral, commands the navy. The Indian Navy is the seventh largest in the world. The primary objective of the navy is to secure the nation's maritime borders.

Constituents of the Navy

5. As of 2018, the Indian Navy has a strength of 67,228 personnel and a large operational fleet consisting of one aircraft carrier, one amphibious transport dock, eight landing ship tanks, 11 destroyers, 14 frigates, one nuclear-powered attack submarine, one ballistic missile submarine, 13 conventionally-powered attack submarines, 23 corvettes, six mine countermeasure vessels, 29 patrol vessels, four fleet tankers and various other auxiliary vessels.

Organisation and Administration

6. Chief of Naval Staff commands Indian Navy. Integrated Headquarters of the Ministry of Defence (Navy) is located in New Delhi. The Navy is divided into three commands: -

Command	Headquarter
Western Naval Command	Mumbai
Eastern Naval Command	Vishakhapatnam
Southern Naval Command	Kochi

AIR FORCE

7. Indian Air Force is the youngest of the three Services. It is the air arm of the Indian armed forces. It is the world's fourth largest air force in terms of both personnel and aircraft. Its primary responsibility is to secure Indian airspace and to conduct aerial warfare during a conflict It came into existence in the year 1932. Indian Air Force comprises of fighter aircrafts, transporter aircrafts, bombers and helicopters. The President of India serves as Supreme Commander of the IAF.

Air Headquarters

8. Indian Air Force is commanded by Chief of the Air Staff. The staff of Air Headquarters consists of three branches: -

(a) Air Staff branch.
(b) Administrative branch.
(c) Maintenance branch.

Commands

9. The Air Force is organized into seven commands which are controlled by Air HQ. Each Command is placed under the command of an Air Officer Commanding-in-Chief. The Commands are: -

Command	Headquarter
Operational commands	
Central Air Command (CAC)	Allahabad, Uttar Pradesh
Eastern Air Command (EAC)	Shillong, Meghalaya
Southern Air Command (SAC)	Thiruvananthapuram, Kerala
South Western Air Command (SWAC)	Gandhinagar, Gujarat
Western Air Command (WAC)	New Delhi
Functional Commands	
Training Command (TC)	Bangalore, Karnataka
Maintenance Command (MC)	Nagpur, Maharashtra

POLICE ORGANISATIONS & CENTRAL ARMED POLICE FORCES

10. The principal national-level organization concerned with law enforcement is the Ministry of Home Affairs (MHA) with all matters pertaining to the maintenance of public peace and order. In addition to being the cadre controlling authority of the IPS, the Ministry of Home Affairs maintains several agencies and organizations dealing with police and security. Police in the union territories comes directly under MHA. The Home Secretary, an Indian Administrative Service (IAS) officer, acts as the administrative head of Ministry of Home Affairs.

Central Armed Police Forces & Other Police Organisations

11. The Central Armed Police Forces and other policing agencies have many elements and branches to national security. The details are as under: -

(a) Border Security Force.
(b) Central Industrial Security Force.
(c) Central Reserve Police Force.
(d) Indo-Tibetan Border Police.
(e) National Security Guards.
(f) Special Protection Group.
(g) Sashastra Seema Bal (SSB).
(h) Assam Rifles (AR).

12. Central Investigation and Intelligence Institutions of Police Organisations:-

(a) Central Bureau of Investigation.
(b) Indian Income-tax Department.
(c) Directorate of Revenue Intelligence.
(d) Central Economic Intelligence Bureau.
(e) Directorate General of Central Excise Intelligence.
(f) National Investigation Agency.
(g) Narcotics Control Bureau.
(h) Bureau of Police Research and Development (BPRD).
(j) National Crime Records Bureau (NCRB).

13. Central Forensic Institutions of Police Organisations :-

(a) Central Forensic Science Laboratory.
(b) LNJN National Institute of Criminology and Forensic Sciences (LNJN-NICFS).

State Police Organisations

14. The controlling authority of a State Police force is the Department of the Home of the State Government. The additional chief secretary (Home) or Principal Secretary (Home), generally an Indian Administrative Service (IAS) officer, acts as the executive agency of the State Home Department. Each state and union territory of India has a state police force, headed by a director general of police ranked officer.

15. Under the inspector general are a number of police "Ranges" composed of three to six districts, headed by Deputy Inspectors General. District police headquarters are commanded by Superintendents of Police (SP).

16. **Other Elements of State Police & Hierarchy**. Each district is divided into sub-divisions or circles headed by a Deputy Superintendent of police (DSP). Each sub-division is made up of several police stations under the command of an Inspector of police. In rural areas, a Sub-inspector is in-charge of a police station.

BADGES OF RANKS, HONOURS AND AWARDS IN ARMED FORCES, POLICE AND CENTRAL ARMED POLICE FORCES

17. The Indian Armed Forces, Central Armed Police Forces and Police organisations consist of three services, the Indian Army, Indian Navy, and Indian Air Forces, eight Central Armed Police Forces and other Police organisations in our nation. All the services have distinct badges of ranks with different colours which

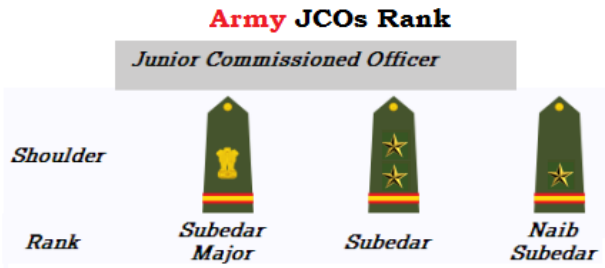
help in identifying soldiers / policemen and their commanders. The ranks of badges are given as per professional competence and length of service in Armed Forces and in other police organisations.

BADGES OF RANK - ARMY

Commissioned Officers - Army

18. Commissioned Officers of Indian Army are those who command their troops from Platoon or equivalent up to armies and hold Presidents commission. Field Marshal is an honorary rank and is given to a General for his valuable services. The badges of rank worn by commissioned officers are as shown:-

Junior Commissioned Officer (JCO) Army



19. The second set of officers in the Army is Junior Commissioned Officers. The soldiers who become JCOs come up through the Non-Commissioned Officer's ranks. The badges of rank worn by the JCOs are as shown:-

Non-Commissioned Officer (NCO) Army

20. The third set of officers is the Non-Commissioned Officers (NCOs). These ranks are given to jawans according to their merit and seniority. The badges of ranks for NCOs are as shown:-

BADGES OF RANK- NAVY

Commissioned Officers Navy

21. Admiral of the Fleet is an honorary rank given to an Admiral for his invaluable services and will continue to serve the rest of his term with the honorary rank. This rank has not been used in the Indian Navy. The badges of rank worn by Naval Officers are: -

Junior Commissioned Officers (JCOs) Navy

22. The badges of rank worn by Junior Commissioned Officers (JCOs) Navy are as shown:-.

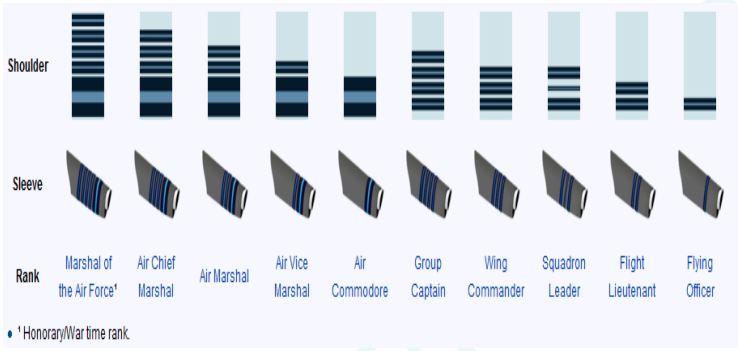
Non-Commissioned Officers (NCOs) Navy

23. The badges of rank worn by the NCOs are as shown:-

BADGES OF RANK- AIR FORCE

Commissioned Officers Air Force

24. Marshall of the Air Force is an honorary rank given to an Air Chief Marshall for his invaluable services. In recognition of his services the Government of India gave the rank of Marshall of the Air Force to Arjan Singh in January 2002 making him the first and the only “Five Star” rank officer with the Indian Air Force. The badges of rank worn by officers are as shown:-



Junior Commissioned Officers (JCOs) Air Force

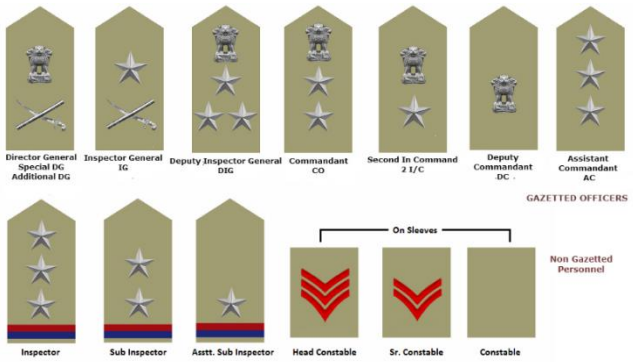
25. The badges of rank worn by these Officers are as shown:-

Non-Commissioned Officers (NCOs) Air Force

26. The badges of rank worn by these NCOs are as shown:-

BADGES OF RANK- POLICE & CENTRAL ARMED POLICE FORCES

27. The badges of ranks worn by CAPF & Police are as shown:-



HONOURS AND AWARDS

28. The Armed Forces, Police and CAPF are also awarded decorations, honours and awards for extraordinary contribution, bravery and courage, as well as for distinguished service during times of war and peace. For the purpose of classification, Civilian's category, Armed Forces, Police and Central Armed Police Forces honours and awards can be divided into following categories: -

(a) Gallantry Awards of Armed forces.
(b) Padma Awards.
(c) President's Police Medal (PPM) for Distinguished Service.
(d) President's Police Medal (PM) for Meritorious Service.
(e) Distinguished Service Awards of Armed Forces.
(f) Governor's Police Medals for Gallantry & Distinguished Service.
(g) Union Home Minister's Medal for Excellence in Investigation.
(h) Antrik Suraksha Seva Medal.
(j) Police Special Duty Medal.
(k) Parakram Padak.
(l) Kabir Puraskar
(m) Communal Harmony Awards
(n) Fire Service Medals
(o) Home Guard & Civil Defence Medals.

29. These awards are given on occasions of various felicitation ceremonies organized at Rashtrapati Bhawan, New Delhi, on Republic Day and on various occasions. Here are the awards given to Armed Forces, CAPF & Police enumerated below: -

30. **Gallantry Awards in the Face of Enemy (War Time)**.

(a) Param Vir Chakra.
(b) Maha Vir Chakra.
(c) Vir Chakra.
(d) Sena Medal / Nau Sena Medal / Vayu Sena Medal.
(e) Mention in Dispatch.
(f) Chief of Staff Commendation Card.

31. **Gallantry Awards Other than in the Face of Enemy (Peace Time)**.

(a) Ashoka Chakra.
(b) Kirti Chakra.
(c) Shaurya Chakra.
(d) President's Police Medal (PPM) for Gallantry.
(e) President's Police Medal (PPM) for Distinguished Service.

32. **Non-Gallantry Awards /Distinguished Service Awards**.

(a) Sarvottam Yudh Seva Medal.
(b) Param Vishisht Seva Medal.
(c) Uttam Yudh Seva Medal.
(d) Ati Vishisht Seva Medal.
(e) Yuddh Seva Medal.
(f) Vishisht Seva Medal.

ROLE AND TASK OF ARMY, POLICE & CAPF

33. The primary role of the services is to ensure national security and territorial integrity, defending the nation from external aggression and internal threats, and maintaining peace and security within its borders. It conducts humanitarian rescue operations during natural calamities and other disturbances, and also requisitioned by the government to cope with internal threats. In a similar manner primarily central armed police forces and police are meant for national security and for maintenance of public order as well as peace and harmony with in country. During the time of need the Armed Forces are employed in Aid to Civil Authorities if situation is beyond control of CAPF and police forces. The Army since independence has taken part in the following major operations:-

(a) Kashmir Operations against Pakistan 1947-48.
(b) Sino-Indian War in NEFA (Arunachal) and Ladakh 1962.

(c) Indo-Pak war 1965.
(d) Indo-Pak war 1971.
(e) Sri Lanka 1987-1990 (Operation Pawan).
(f) Kargil War 1999 (Operation Vijay).

Command and Control

34. The Integrated Headquarters of Ministry of Defense (Army) functions under the Ministry of Defence and is located at New Delhi. Command HQs have field formations and static formations under them to execute the role and tasks assigned.

Field Formations

35. These are the field forces for the battle, grouped into following three categories:-

(a) **Corps**. Commanded by an officer of the rank of Lieutenant General. It has 3-4 Divisions under its command. The Corps are of two types depending on their role:-

(i) "Holding" (Defensive) Corps.
(ii) "Strike" (Offensive) Corps.

(b) **Divisions**. Commanded by an officer of the rank of Major General. It has 3-4 Brigades under its command.

(c) **Brigades**. Commanded by an officer of the rank of Brigadier. It has 3-4 Battalions under its command. Each Battalion has six companies commanded by a Company Commander.

Static Formations

36. Area Headquarters, Sub Area Headquarters and Station Headquarters are commanded by an officer of the rank of Lieutenant General, Major General and Brigadier respectively. These formations are extended all over the country and look after the infrastructural assets, lines of communication logistics, administration and all civil-military matters.

FIGHTING ARMS, ROLE AND TASKS

Armoured Corps

37. The Armoured Corps is one of the combat arms of the Indian Army. Formed in 1947, it has battle tanks which provide the mobility and fire power. It currently consists of 63 armoured regiments; including the president's bodyguards. Armour is best suited for present day battle field environment because of its mobility, fire power, protection and shock action. An Armoured Regiment has 45 tanks. In India we have Tank T-72, Tank T-90, MBT Arjun and Bhishma tanks.

38. **Role & Tasks**. To destroy the enemy by relentless mobile and offensive action in both offensive as well as defensive operations.

Infantry

39. Infantry is the main combat arm, best arm suited for close battle. Its role is to close in with the enemy and destroy him or capture his territory. In Defence, they hold the ground against all types of attack. They also take part in counter insurgency and counter terrorist operations. Infantry also provides assistance in aid to civil authorities when called for.

40. **Role & Task**. Infantry is essential arm of close combat. Its role in attack is to close in with the enemy and destroy or capture him; in defence it is to hold ground against all forms of attacks by the enemy.

Mechanised Infantry

41. It is infantry with more mobility and fire power. Mechanized Infantry operates in armoured personnel carrier (APC) which has enough protection against small arms fire. They operate along with Armour in battle field. Equipments used are BMP- I and II.

42. The concept of mechanised infantry is based on the need to provide protection with added mobility, radio communications and firepower to enable the infantry to operate effectively in mobile operations with armour.

Role & Tasks of the Mechanized Infantry

43. **Primary Role**. The primary role of the mechanised infantry is to close with the enemy in coordination with armour and destroy or capture the enemy.

44. **Secondary Role**.

(a) Destroy the enemy over run by armour.
(b) Hold ground temporarily.
(c) Reconnaissance.
(d) For counter infiltration and against parachute and heliborne landings.

SUPPORTING ARMS, ROLE AND TASKS

Artillery

45. The role of Artillery is to provide such fire power in the battle area that enemy neither interferes with our operations, nor develops his own effectively. It comprises of light, medium and field guns, howitzers, missiles, mortars, multi barrel rocket launchers and missiles.

46. **Role & Tasks.** The tasks of Arty are as follows: -

(a) To provide heavy volume of fire at long ranges.
(b) To provide fire power to advancing Infantry in offensive operations and defensive support to keep enemy head down with shocking firepower.
(c) To provide fire power to fighting arms.
(d) Surveillance and Target Acquisition.

Army Air Defence

47. Army Air Defence is equipped with air defence guns and Short and Medium range surface to air missile systems. Along with Air force it provides air defence to mobile forces, Vulnerable Areas and Vulnerable Points.

48. **Role & Tasks.** The tasks of Air Defence are :-

(a) To safeguard against hostile aircrafts, helicopters and drones attacking high value targets including Fighting Arms.

(b) To ensure early detection and destruction of enemy aircrafts.

Army Aviation Corps

49. **Role & Task**. The role of Army Aviation corps is to carry out recce and observation and also to provide commanders and staff, rapid means of communication for liaison visits and reconnaissance. It is ideally suited for evacuation of battle casualties.

Corps of Engineers

50. It is one of the oldest supporting arms of the Indian army. The role of Engineers in War is to provide support for offensive and defensive operations in mine warfare, bridging, demolition, constructions of field fortifications and operational roads/tracks.

51. **Role & Tasks**. The task of Engineers are as follows :-

(a) To provide mobility to own forces by constructing bridges, tracks and helipads; on the other hand the Corps denies the same to the enemy by creating obstacles such as laying mine-fields and carrying out demolition of bridges.
(b) To lay mine fields during War and also removing the mines and maintenance of records thereof.
(c) To create water sources during operations.
(d) To help in transportation of explosives and undertake bomb disposal activities during peace and war.

Corps of Signals

52. **Role & Task** They are the communicators of Indian Army and provide Radio, Radio Relay, data and line communication and establish Signal Centres during war and peace. It also monitors enemy's communication systems.

Intelligence Corps

53. **Role & Task**. The main task of Intelligence Corps is to gather intelligence of the enemy and prevent the leakage of own information to the enemy.

SUPPORTING SERVICES, ROLE & TASKS

54. The following are Supporting Services, as they provide logistical support to fighting & Supporting Arms:-

Corps of Electrical and Mechanical Engineering

55. **Role & Tasks.** The major role of EME is repair, recovery and maintenance of all vehicles, arms, electrical, electronic and mechanical equipment.

Army Service Corps

56. **Role & Tasks.** ASC is responsible for: -

(a) The supply and provision of ration to the Army during peace and war.
(b) To provide fuel oil and lubricants to the entire Army.
(c) To provide transport for conveyance of troops during movement.
(d) Transportation of heavy equipment and machineries including ammunition during war.

Army Medical Corps

57. **Role & Tasks**. It provides medical facilities during war as well as in peace stations to troops and their families.

Army Dental Corps

58. **Role & Tasks**. This Corps provides dental hygiene and treatment to the soldiers.

Military Nursing Service

59. **Role & Tasks**. They provide nursing and care to the sick and wounded army personnel.

Army Ordinance Corps

60. **Role & Tasks**. It is responsible to provide equipment support to the Army during war & peace which are not the responsibility of ASC, AMC and that of ENGINEERS.

Remount and Veterinary Corps

61. **Role & Tasks**. It deals with caring and training of animals. It is employed with Army Supply Corps for transportations of Weapons, ammunitions, explosives, stores in forward area where vehicles cannot be employed economically.

Military Farms

62. **Role & Tasks**. They provide the Indian Army with dairy products and fodder for the animals maintained by the Army.

Army Education Corps

63. **Role & Tasks**. AEC is responsible for imparting Military & Civil education to troops which helps them in passing promotion exams required in their career and profession. They impart higher education to JCOs and NCOs.

Corps of Military Police

64. **Role & Tasks**. Its role is to provide security to Army personnel and their families and maintain law and order in the Army area. It also helps in movement of men, material and vehicles during peace or war.

Judge Advocate General Branch

65. **Role & Tasks**. Deals with Justice System and legal matters relating to all Arms, Services and branches of the Armed Forces.

Military Engineering Services

66. **Role & Tasks**. They are responsible for the design, construction and maintenance of all works, buildings, airfields, dock installations and also with accessory services for the Army.

Border Roads Organisation

67. **Role & Tasks**. Their main purpose is to create national highways, airfields, buildings and bridges.

Army Pioneer Corps

68. **Role & Tasks**. Civilian labour is either not available or it is not required for security reasons. The Pioneer Corps provides disciplined and well trained manpower for load carriage. They are mostly committed in operational areas during war.

ROLE AND TASK OF CENTRAL ARMED POLICE FORCES & POLICE

Central Armed Police Forces & Other Police Agencies

69. The central agencies are controlled by the central government. The majority of federal law enforcement agencies are controlled by the Ministry of Home Affairs. The head of each of the federal law enforcement agencies is always an Indian Police Service (IPS) officer and in case of Assam Rifles it is regular army officer.

70. **Assam Rifles (AR)**. Assam Rifles (AR) is the oldest paramilitary force in India whose primary role is to protect part of India's North eastern borders and also the internal security also. It also maintained law and order in the tribal areas. The organisation is headed by DGAR appointed from Serving Regular Army cadre. The personnel are recruited from all over India in all ranks and Officers are from the regular army and also from Assam Rifles cadre.

71. **Border Security Force**. The Indian Border Security Force (BSF) is responsible for policing India's land borders during peacetime and preventing trans-border crimes along Pakistan and Bangladesh. It is a central police force operating under the MHA. It performs a variety of duties ranging from VIP security to election duties, from guarding of vital installations to counter-Naxal operations etc.

72. **Central Industrial Security Force**. The primary task of CISF is providing industrial security. The Central Industrial Security Force (CISF) guards industrial installations around the country owned by the Central government as well as securing seaports and airports. The CISF also provides security to certain NGOs. They provide security for atomic power plants, space installations, mints, oil fields and refineries, major ports,

heavy engineering plants, steel plants, barrages, fertilizer units, airports, hydroelectric/thermal power plants and other installations partially or wholly run by the government.

73. **Central Reserve Police Force**. The Central Reserve Police Force (CRPF) is one of the largest Central Police organizations in the world. Its main objective is to assist and help states and union territories' law enforcement agencies in maintaining law and order and to contain insurgency. It is also deployed as an anti-terrorist unit in various regions. It is even operating abroad as part of United Nations peacekeeping missions. It performs a variety of duties ranging from VIP security to election duties, from guarding of vital installations to the counter-Naxal operations etc.

74. **Indo-Tibetan Border Police**. The Indo-Tibetan Border Police (ITBP) is responsible for security along the Indo-Tibetan Border. The ITBP personnel are trained in the fields of law and order, military tactics, jungle warfare, counter-insurgency, and internal security ITBP is an elite and agile force. It is involved in war-time and peace-time duties at the border and the surrounding areas.

75. **National Security Guards**. The National Security Guards (NSG) is a commando unit originally created for counter-terrorism and hostage rescue missions. Raised in 1986, it is popularly known as the "Black Cats" for the uniform worn by its operators. The NSG draws its core members from the Indian Army and the balance support staff from various central police units. It is India's premier counter-terror outfit and is typically deployed in situations that would be beyond the capabilities of regular police units. An NSG team with a dedicated transport aircraft is always stationed at Palam airport in New Delhi, ready to deploy in 30 minutes. The NSG has also been increasingly tasked with the protection of VIPs.

76. **Special Protection Group**. The Special Protection Group (SPG) is the executive protection agency of the Government of India. It provides the security 24 by 7 all over India to Prime Minister including ex-prime Ministers and their Family Members at any location across India.

77. **Sashastra Seema Bal (SSB)**. The Sashastra Seema Bal, formed in the year 1963, deployed at the Indo-Nepal and Indo-Bhutan borders. The SSB personnel are trained in the fields of law and order, military tactics, jungle warfare, counter-insurgency, and internal security.

OTHER CENTRAL INVESTIGATION AND INTELLIGENCE AGENCIES

78. **Central Bureau of Investigation**. The Central Bureau of Investigation (CBI) is India's premier investigative agency, responsible for a wide variety of criminal and national security matters. The CBI is a formal and authorized agency of the Central government to carry out policing all across the nation. The Central Bureau of Investigation is controlled by the Department of Personnel and Training in the Ministry of Personnel, Public Grievances and Pensions of the Government of India usually headed by the Prime Minister as the Minister of Personnel, Public Grievances and Pensions. It is India's official Interpol unit. The CBI draws its officers from the IPS and IRS officers around the country.

79. **Indian Income-tax Department**. The Tax Department is controlled by the Department of Revenue in the Ministry of Finance of the Union Government headed by a Union Minister who reports directly to the Prime Minister. The officials of the Board in their ex-officio capacity also function as a Division of the Ministry dealing with matters relating to levy and collection of direct taxes and matters of tax evasion and revenue intelligence.

80. **Directorate of Revenue Intelligence**. The Directorate of Revenue Intelligence (DRI) is an intelligence-based organization responsible for the coordination of India's anti-smuggling efforts.

81. **Central Economic Intelligence Bureau**. The Central Economic Intelligence Bureau (CEIB) is an Indian intelligence agency responsible for gathering information and monitoring the economic and financial sectors for economic offenses and warfare

82. **Directorate General of Central Excise Intelligence**. The Directorate General of Central Excise Intelligence (DGCEI) earlier known as the Directorate General of Anti-Evasion is an intelligence-based organization responsible for the detection of tax evasion cases related to Central Excise Duty and Service tax.

83. **National Investigation Agency**. National Investigation Agency (NIA) is the central agency to combat terror in India. The agency is empowered to deal with terror-related crimes across states without special permission from the states.

84. **Narcotics Control Bureau**. The NCB is responsible for anti-narcotic operations all over the country. It checks the spread of contraband as well as the cultivation of drugs.

85. **Bureau of Police Research and Development (BPRD)**. The Bureau of Police Research and Development (BPRD) was set up on 28 August 1970 in furtherance of the objective of the Government of India for the modernization of Police Forces. It is involved in research, relating to problems confronting the Indian police, the training of different ranks of Police in India, and the introduction of technology at both federal and state levels.

86. **National Crime Records Bureau (NCRB)**. The National Police Commission in 1979 recommended the creation of a "Nodal Agency" which suggested the maintenance of criminal records at all the police stations in the country and to create shareable databases at police stations and districts and at state and federal Level.

87. **Central Forensic Science Laboratory**. The Central Forensic Science Laboratory (CFSL) is a wing of the Indian Ministry of Home Affairs, which fulfills the forensic requirements in the country. It houses the only DNA repository in South and Southeast Asia. There are eight central forensic laboratories in India, at Hyderabad, Kolkata, Bhopal, Chandigarh, Pune, Nagpur, Gauhati, and New Delhi. CFSL Hyderabad is centre of excellence in chemical sciences, CFSL Kolkata in biological sciences and CFSL Chandigarh in physical sciences. These laboratories are under the control of the Directorate of Forensic Science (DFS) of the Ministry of Home Affairs. The laboratory in New Delhi is under the control of the Central Bureau of Investigation (CBI).

88. **National Institute of Criminology and Forensic Sciences**. The National Institute of Criminology and Forensic Science (formerly the "Institute of Criminology and Forensic Science") came into existence in 1972 to look into the applied aspects of education, training and research in the fields of Criminology and Forensic Science for Criminal Justice System in India, headed by senior IPS officers. The Institute also has a capacity for training and teaching roles for cybercrime investigations, conducts research in various aspects of criminology and forensics including cyber forensics.

89. **State Police**. At all levels, the senior police officers in chain of command and respond to the general direction and control of designated civilian officials. District superintendents of police (SP) are not empowered as executive magistrates, in districts, the district magistrate and collector (DM or collector), who is an IAS officer, exercises these powers, such as promulgating Section 144 of the Code of Criminal Procedure (CrPC) and granting arms licenses.

90. **Reserved State Armed Police Forces & their Role**. The Provincial Armed Constabulary is an armed reserve maintained at key locations in some states and active only on orders from the deputy inspector general and higher-level authorities. Armed Constabulary are not usually in contact with the public until they are assigned to VIP duty or assigned to maintain order during fairs, festivals, athletic events, elections, and natural disasters. They may also be sent to quell outbreaks of student or labour unrest, organized crime, and communal riots; to maintain key guard posts, and to participate in anti-terrorist operations.

91. **Criminal Investigation Department.** CID is constituted in each district under a deputy inspector general for the purpose of collating and distributing information regarding organized crimes.

92. **Traffic police.** Highway police and traffic police in the small towns come under the state police, but traffic police in the cities come under the metropolitan police and state police. The traffic police are responsible for maintaining the smooth flow of traffic and stopping offenders in the city or town, Highway Police are responsible for securing the highways and for catching speeding offenders. Accidents, registrations, vehicle data are all looked by the traffic police.

CONCLUSION

93. The organisation of the Armed Forces, Police organisation and Central Armed Police Forces is structured in a manner to facilitate coordination of the functioning of all the services with the nucleus being the Headquarters and various formations down the chain of command in all the services. As NCC cadets and responsible youth it is must to understand these organisations, playing major role in national security, development as well as in nation building.

CHAPTER 2 : MODES OF ENTRY TO ARMY, CAPF AND POLICE

Army

1. The Indian Army's primary mission is to ensure the national security and defence of the Republic of India from external threats and maintaining peace and security. It also provides aid to civil authorities in maintaining essential services and conduct operations during Natural calamities (earthquake, flood, drought etc.) and other disturbances such as communal riots.

Types of Commission

2. The Army offers both Permanent and Short Service Commission. Permanent Commission (PC) is granted through the Indian Military Academy (IMA) Dehradun and Short Service Commission (SSC) is granted through Officers Training Academy (OTA) Chennai:-

(a) **Permanent Commission.**

(i) NDA / AFMC - after 10+2 (Through UPSC).
(ii) Direct Entry (Through UPSC).
(iii) Engineering Graduates – TGC.
(iv) University Entry Scheme.
(v) Technical Entry Scheme 10 +2.
(vi) Army Cadet College Wing, after 10+2.
(vii) SCO / PCSL Entry from Regular Army.

(b) **Short Service Commission**.

(i) Non-Tech (Both Men & Women).
(ii) Tech (Both Men & Women).
(iii) NCC Special Entry (Both Men & Women).
(iv) Law Graduates (Both Men & Women).

Note. Details of eligibility criteria, duration and venue of training and other information is freely available through newspapers or may be obtained from www.joinindianarmy.nic.in.

ENTRY SCHEMES OFFICERS (MEN AND WOMEN)

3. **National Defence Academy (NDA)**.

Vacancies Per Course	320 (Twice a year) Army – 208, Air Force – 70, Navy - 42
Notification Published in Employment News and leading Daily news Paper	Jun and Dec, Notified by UPSC
Eligibility Criteria	
Age	16 ½ to 19½ yrs as on first day of the month in which course is due to commence
Qualification	12th Class of 10+2 System of Education of Equivalent for Army and with Physics and Maths for AF/Navy
Marital Status	Un Married
How to Apply	Apply Online on UPSC Website as per dates given in the Notfication in the months of Jun and Dec.
Likely SSB Date	Sep to Oct for Jan Course and Jan to Apr for Jul Course
Date Commencement of Training	Jan and Jul
Training Academy	NDA , Khadakwasla, Pune
Duration of Training	3 Yrs at NDA and 1 Yr at IMA

4. **10+2 Technical Entry Scheme (TES)**.

Vacancies Per Course	90 (Twice a year)
Notification Published in Employment News and leading Daily news Paper	Notified by DG Rtg AG's branch IHQ of MOD(Army) in May/Jun & Oct/Nov
Eligibility Criteria	
Age	16 ½ to 19½ yrs as on first day of the month in which course is due to commence
Qualification	10+2 Physics, Chemistry & Maths (aggregate 70% and above to apply)
Marital Status	Un Married
How to Apply	Apply online on Official website of DG Rtg www.joinindianarmy.nic.in as Notified in the Notification.
Likely SSB Date	Aug to Oct and Feb to Apr
Date Commencement of Training	Jan and Jul
Training Academy	OTA Gaya
Duration of Training	5 Yrs (1 Yr OTA GAYA & 4 Yrs CTWS) Permanent Commission after 4 Yrs. **Phase-I**- 01 Year Pre-commissioning Training at OTA Gaya & 03 Years at CME Pune/MCTE Mhow/MCEME Secunderabad **Phase-II**- 01 Year Post commission training at CME Pune/MCTE Mhow/MCEME Secunderabad

5. **Indian Military Academy Direct (IMA)**.

Vacancies Per Course	200 (Twice a year).
Notification Published in Employment News and leading Daily news Paper	Notified by UPSC under the aegis of CDSE in Jul and Nov
Eligibility Criteria	
Age	19 to 24 years
Qualification	Graduation from Recognised University.
Marital Status	Un Married
How to Apply	Apply Online on UPSC Website as per dates given in the Notfication in the months of Jul and Nov.
Likely SSB Date	Aug / Sep and Feb / Mar
Date Commencement of Training	Jan and Jul
Training Academy	IMA, Dehradun
Duration of Training	1 ½ Years

6. **Officers Training Academy (Non-Technical Men)**.

Vacancies Per Course	175 (Twice a year)
Notification Published in Employment News and leading Daily news Paper	Notified by UPSC under the aegis of CDSE in Jul and Nov
Eligibility Criteria	
Age	19 to 25 yrs
Qualification	Graduation from Recognised University.
Marital Status	Un Married
How to Apply	Apply Online on UPSC Website as per dates given in the Notfication in the months of Jul and Nov.
Likely SSB Date	Nov / Dec and May / Jun
Date Commencement of Training	Oct and Apr
Training Academy	OTA Chennai
Duration of Training	49 Weeks

7. **Judge Advocate General (JAG) Men**.

Vacancies Per Course	10(As Notified)(Twice a year)
Notification Published in Employment News and leading Daily news Paper	Notified by Directorate General Recruiting / AG Branch in Jul/Aug and Jan/Feb
Eligibility Criteria	
Age	21 to 27 years
Qualification	Graduate with LLB with 55% marks. Eligible for Registration with Bar Council of India / State.
Marital Status	Un Married
How to Apply	Apply online on Official website of DG Rtg www.joinindianarmy.nic.in as Notified in the Notification.
Likely SSB Date	Dec / Jan and Jul / Aug
Date Commencement of Training	Apr and Oct
Training Academy	OTA, Chennai
Duration of Training	49 Weeks

8. **NCC (Spl) Entry Men**.

Vacancies Per Course	50 (Twice a Year)
Notification Published in Employment News and leading Daily news Paper	Notified by Directorate General Recruiting / AG Branch in Jun and Dec
Eligibility Criteria	
Age	19 to 25 years
Qualification	Graduate with 50% Aggregate marks, Two Years' service in NCC Senior Div Army with minimum 'B' Grade in 'C' Certificate Exam.
Marital Status	Un Married

How to Apply	Apply offline as Notified in the Notification through NCC Dte
Likely SSB Date	Dec / Jan and Jun / July
Date Commencement of Training	Apr and Oct
Training Academy	OTA, Chennai
Duration of Training	49 Weeks

9. **University Entry Scheme (UES)**.

Vacancies Per Course	60 (As Notified) (Once a Year)
Notification Published in Employment News and leading Daily news Paper	Notified by Directorate General Recruiting / AG Branch in Jun/Jul
Eligibility Criteria	
Age	18 to 24 years
Qualification	Pre Final year students of Notified Engineering Streams
Marital Status	Un Married
How to Apply	Apply online on Official website of DG Rtg www.joinindianarmy.nic.in as Notified in the Notification.
Likely SSB Date	Nov to Feb
Date Commencement of Training	Jul
Training Academy	IMA, Dehradun
Duration of Training	One Year

10. **Technical Graduate Course (TGC) Engineers**.

Vacancies Per Course	60 (As Notified) (Twice a Year)
Notification Published in Employment News and leading Daily news Paper	Notified by Directorate General Recruiting / AG Branch in Mar/Apr and Sep/Oct.
Eligibility Criteria	
Age	20 to 27 years
Qualification	BE / B Tech in notified streams of Engineering
Marital Status	Un Married
How to Apply	Apply online on Official website of DG Rtg www.joinindianarmy.nic.in as Notified in the Notification.
Likely SSB Date	Mar / Apr and Sep / Oct
Date Commencement of Training	Jan and Jul
Training Academy	IMA, Dehradun
Duration of Training	One Year

11. **Short Service Commission Tech (Men)**.

Vacancies Per Course	100 (As Notified) (Twice a year)
Notification Published in Employment News and leading Daily news Paper	Notified by Directorate General Recruiting / AG Branch in Jun / Jul and Dec/Jan
Eligibility Criteria	
Age between	20 to 27 years
Qualification	Engineering Degree in notified stream
Marital Status	Un Married
How to Apply	Apply online on Official website of DG Rtg www.joinindianarmy.nic.in as Notified in the Notification.
Likely SSB Date	Dec-Jan and Jun-Jul
Date Commencement of Training	Apr and Oct
Training Academy	OTA, Chennai
Duration of Training	49 Weeks

12. **Army Education Corps (AEC) Men**.

Vacancies Per Course	20 (As Notified) (Twice a Year)
Notification Published in Employment News and leading Daily news Paper	Notified by Directorate General Recruiting / AG Branch in Mar/Apr and Sep/Oct
Eligibility Criteria	
Age	23 to 27 years
Qualification	MA / MSc in 1st or 2nd division in notified subjects from recognised university.
Marital Status	Married and Un Married
How to Apply	Apply online on Official website of DG Rtg www.joinindianarmy.nic.in as Notified in the Notification.
Likely SSB Date	Mar / Apr and Sep / Oct
Date Commencement of Training	Jan and Jul
Training Academy	IMA, Dehradun
Duration of Training	One Year

13. **Army Cadet College (ACC)**.

Vacancies Per Course	75 (Twice in a Year)
Tentative Month of Publication of Notification	Notified by MP Directorate / AGs Br through Units in Mar and Aug
Eligibility Criteria	
Age	20 to 27 years , minimum service of two years one can apply
Qualification	10+2 Pattern Class with 12th pass or Equivalent. Should have qualified ACC written test
Marital Status	Unmarried / Married
Likely Date of SSB	Sep to Nov for Jan Course Mar to May for Jul Course
Training Academy	ACC Wing at IMA, Dehradun

Duration of Training	Four Years (Three Years in ACC Wing & One Year at IMA)

14. **Permanent Commission (PC SL)**.

Vacancies Per Course	100 (Once in a Year)
Tentative Month of Publication of Notification	Notified by MP Dte / AGs Br through Units in Apr and Jul
Eligibility Criteria	
Age	Maximum age 42 years, 45 years for Engineers & 45 years for IOB Minimum service 10 years
Qualification	Matric & Above
Marital Status	Unmarried / Married Serving JCOs / NCOs excluding Sepoys
Likely Date of SSB	Sep and Oct for Jul Course
Training Academy	AEC Centre & College, Pachmarhi & IMA, Dehradun
Duration of Training	Eight Weeks at AEC Centre & College, Pachmarhi & Four Weeks at IMA

15. **Special Commissioned Officer (SCO)**.

Vacancies Per Course	100 (Twice in a Year)
Tentative Month of Publication of Notification	Notified by MP Directorate / AGs Br through Units in Apr and Jul
Eligibility Criteria	
Age	Between 30 to 35 years. minimum service of five years can apply
Qualification	Matric with One Year Diploma or above
Marital Status	Unmarried / Married
Likely Date of SSB	Jul/Aug for Jan Course & Nov/Dec for Jul Course
Training Academy	OTA, Gaya
Duration of Training	Eight Weeks at AEC Centre & College, Pachmarhi & One Year at OTA, Gaya

16. **Territorial Army (TA)**.

Vacancies Per Course	Notified by Line Directorate (Twice in a Year)
Tentative Month of Publication of Notification	Notified by TA Directorate
Eligibility Criteria	
Age	18 to 42 years
Qualification	Graduate from a recognised university
Marital Status	Unmarried / Married
Likely Date of SSB	Aug / Sep & May / Jun
Training	**Recruit Training.** 30 days under TA Battalion. **Annual Training Camp**. Two calendar month in each training year. **Post Commission Training**. Three month in IMA within two years of commissioning.

17. **Remount & Veterinary Corps (RVC)**.

Vacancies Per Course	Notified by Line Directorate
Tentative Month of Publication of Notification	Nov / Dec , Notified by RVC Directorate
Eligibility Criteria	
Age	21- 32 years
Qualification	BVSc & AH
Marital Status	Unmarried / Married
Likely Date of SSB	Sep / Oct
Training Academy	RVC, Meerut
Duration of Training	Three months

18. **Army Medical Corps (Non-Technical)**.

Vacancies Per Course	Notified by Line Directorate
Tentative Month of Publication of Notification	Notified by AMC Directorate
Eligibility Criteria	
Age	Max 42 years
Qualification	Minimum Matric
Marital Status	Unmarried / Married
Likely Date of SSB	Nov / Dec
Training Academy	AMC Centre & College.
Duration of Training	Three months

19. **Army Postal Service (APS)**.

Vacancies Per Course	Notified by Line Directorate
Tentative Month of Publication of Notification	Notified by APS Directorate
Eligibility Criteria	
Age	Max 45 years
Qualification	Minimum Matric
Marital Status	Unmarried / Married
Likely Date of SSB	Sep /Oct

WOMEN ENTRY SCHEMES

20. **Short Service Commission (Non-Technical) Women**.

Vacancies Per Course	12 (Twice a year)
Notification Published in Employment News and leading Daily news Paper	Notified by UPSC under the aegis of CDSE in July and Nov

Eligibility Criteria	
Age	19 to 25 years
Qualification	Graduation from Recognized University.
Marital Status	Un Married
How to Apply	Apply Online on UPSC Website as per dates given in the Notfication in the months of Jul and Nov.
Likely SSB Date	Jun / July and Nov / Dec
Date Commencement of Training	Oct and Apr
Training Academy	OTA Chennai
Duration of Training	49 Weeks

21. **NCC Special Entry Scheme (Women)**.

Vacancies Per Course	Four (Twice a year)
Notification Published in Employment News and leading Daily news Paper	Notified by Directorate General Recruiting / AG Branch in Jun and Dec
Eligibility Criteria	
Age	19 to 25 years
Qualification	Graduate with 50% Aggregate marks, Two Years service in NCC Senior Div Army with minimum 'B' Grade in 'C' Certificate Exam.
Marital Status	Un Married
How to Apply	Apply online as Notified in the Notification through NCC Dte.
Likely SSB Date	Dec / Jan and Jun / July
Date Commencement of Training	Apr and Oct
Training Academy	OTA, Chennai
Duration of Training	49 Weeks

22. **Short Service Commission for Women (SSCW) JAG**.

Vacancies Per Course	Four (As Notified) (Twice a year)
Notification Published in Employment News and leading Daily news Paper	Notified by Directorate General Recruiting / AG Branch in Jul/Aug and Jan/Feb.
Eligibility Criteria	
Age	21 to 27 years
Qualification	Graduate with LLB with 55% marks. Eligible for Registration with Bar Council of India / State.
Marital Status	Un Married
How to Apply	Apply online on Official website of DG Rtg www.joinindianarmy.nic.in as Notified in the Notification.
Likely SSB Date	Dec / Jan and Jun / Jul
Date Commencement of Training	Apr and Oct
Training Academy	OTA, Chennai
Duration of Training	49 Weeks

23. **Short Service Commission (Technical) Women.**

Vacancies Per Course	20 (As Notified) (Twice a year)
Notification Published in Employment News and leading Daily news Paper	Notified by Directorate General Recruiting / AG Branch in Jun / Jul and Dec/Jan
Eligibility Criteria	
Age	20 to 27 years
Qualification	Engineering Degree in notified stream.
Marital Status	Un Married
How to Apply	Apply online on Official website of DG Rtg www.joinindianarmy.nic.in as Notified in the Notification.
Likely SSB Date	Dec-Jan and Jun-July.
Date Commencement of Training	Apr & Oct
Training Academy	OTA Chennai
Duration of Training	49 Weeks

JCOS & OTHER RANKS

24. **Educational Qualification and Age Criteria**.

Ser. No	Category	Education	Age
(1)	Soldier (General Duty) (All Arms)	Cl 10th /Matric pass with Min 45% mks in aggregate and Min 33% in each subject.	17 ½ - 21 Yrs
(2)	Soldier Technical (Technical Arms, Artillery, Army Air Defence)	(a) **Sol Tech** 10+2/Intermediate Exam pass in Science with Physics, Chemistry, Maths and English with min 50% marks in aggregate and min 40% marks in each subject. (b)**Sol Tech (Aviation & Ammunition Examiner)**10+2/Intermediate Exam pass in Science with Physics, Chemistry, Maths and English with min 50% marks in aggregate and min 40% marks in each subject.	17 ½ - 23 Yrs
(3)	Soldier Clerk / Store Keeper Technical (All Arms)	10+2/Intermediate Examination Pass in any stream (Arts, Commerce, Science) with min 60% marks in aggregate and min 50% in each subject. Securing 50% in English and Maths/Accounts/Book keeping in Class 12th is mandatory.	17 ½ - 23 Yrs
(4)	Soldier Nursing Assistant (Army Medical Corps)	10+2/Intermediate Exam pass in Science with Physics, Chemistry, Biology and English with min 50% marks in aggregate and min 40% in each subject.	17 ½ - 23 Yrs
(5)	Sepoy Pharma (Army Medical Corps)	10+2 or equivalent exam passed with Physics, Chemistry, Biology and English, qualified in D Pharma with minimum 55% marks in aggregate and registered with State Pharmacy Council/Pharmacy Council of India. Individual qualified in B Pharma with minimum 50% marks and registered with State Pharmacy Council/Pharmacy Council of India will also be eligible.	19 - 25 Yrs

(6)	Soldier Nursing Assistant Veterinary (Remount Veterinary Corps)	10+2/Intermediate Exam pass in Science with Physics, Chemistry, Biology and English with min 50% marks in aggregate and min 40% in each subject.	17 ½ - 23 Yrs
(7)	Soldier Tradesmen (All Arms except Syce, Mess Keeper and House Keeper)	i) 10th Simple Pass. ii) No stipulation in aggregate percentage but should have scored min 33% in each subject.	17 ½ - 23 Yrs
(8)	Soldier Tradesmen (Syce, Mess Keeper and House Keeper)	i) 8th Simple Pass. ii) No stipulation in aggregate percentage but should have scored min 33% in each subject.	17 ½ - 23 Yrs
(9)	Survey Automated Cartographer (Engineers)	BA/BSc with Maths. Must have also passed 12thclass(10+2) or equivalent with Maths and Science as main subjects.	20-25 Yrs
(10)	Junior Commissioned Officer Religious Teacher (All Arms)	As per the Notification.	25-34 Yrs
(11)	Junior Commissioned Officer Catering (Army Service Corps)	Diploma in Hotel Management and Catering Technology.	21-27 Yrs
(12)	Havildar Education (Army Education Corps)	Group X - MA / MSc / MCA or BA / BSc / BCA / BSc (IT) with B Ed Group Y - BSc/BA/BCA/B Sc (IT) (w/o B Ed.)	20-25 Yrs
(13)	Soldier (General Duty) Women Military police	Minimum education qualification is Matric /10th/SSLC or equivalent with 45% marks in aggregate and minimum 33% marks in each subject studied at matric/10th/SSLC level, without mentioning any specific subjects. (Note: # Upper Age limit will be relaxable upto 30 yrs of age (as on date of joining training) in respect of widows of Defence personnel who have died in harness.)	17 ½ - 21 Yrs #

POLICE ORGANISATIONS AND OTHER CENTRAL ARMED POLICE FORCES

Entry into Police Services as an Officer

25. A career in Police or Law Enforcement Service holds huge prospects for courageous and dedicated candidates. The constant increase in crime rates, and the resulting security conscious society, has increased the demand for police jobs in India and across the world. Indian Police Services (IPS) is the premier and apex police service of the country. The Indian Police Service (IPS) was formed in the year of 1948 under the cadre Ministry of Home Affairs.

26. There are two ways of getting into Indian Police Services: -

(a) Passing All India Civil Services Examination conducted by All India UPSC Civil Services Examinations.
(b) Promotions from State Cadre Police Services.

27. A candidate recruited in the IPS has to undergo a tough schedule of training at the police Academy, and within 4 to 5 years one can expect to be a Superintendent of police or Deputy Commissioner of Police. An IPS officer in due course of time may expect to rise to the levels of Director General of Police in a State or Directorate General of any Central Para Military Forces or Other investigating / law enforcement agencies. After IPS, comes the State Police Service (SPS), The Policing is a State subject and all States and Union territories has its own police forces headed by a Directorate General of Police. The recruitment to SPS is also on the same pattern as that of IPS. The only difference is that the recruitment of SPS is made by the state

public service commission concerned, through usually a combined competitive examination for state civil services. However in case of union territories, recruitment of SPS is also made by Union Public Service Commission through the civil services examinations as one of the Group 'B' services. The candidates selected for State Police Services are usually posted as Deputy Superintendent of Police (Deputy SP) or Assistant Commissioner of Police. On prescribed satisfactory service in the SPS, the officers are nominated for the IPS.

Central Armed Police Forces Cadre and Personnel

28. The Central Armed Police Forces have their own officers and personnel to these forces are recruited directly as well as obtained from respective departments. Recruitment is conducted mainly in three modes.

(a) **Gazetted Officers**. Officers in CAPFs are recruited through Central Armed Police Forces (Assistant Commandants) Examination conducted by UPSC. They are appointed as Assistant Commandants and are Gazetted Officers generally referred as DAGOs (Directly Appointed Gazetted Officers). DEGOs (Departmental Entry Gazetted Officers) are those who have been promoted through departmental exams conducted internally for Subordinate Officers.

(b) **Subordinate Officers**. Sub Inspectors are recruited through competitive examination conducted by Staff Selection Commission and they are referred as DASOs (Directly Appointed Subordinate Officers). DESOs (Departmental Entry Subordinate Officers) are those who have been promoted through departmental exams conducted internally for Constables, Head Constables and Assistant Sub Inspectors.

(c) **Constables**. Constables are recruited through competitive examination conducted by Staff Selection Commission. Apart from above modes, CAPFs conduct recruitment for specialized posts such as Engineers, Doctors etc. among DAGOs and Wireless operators, Technicians, Nursing Staff etc amongst subordinate officers and constables directly under their own authority.

Assistant Commandant

29. Out of total vacancies of Assistant Commandants in CAPF, 50% are filled by Direct Recruitment (including 10% from SSCO), 33% by promotion from Inspector to AC & 17% by limited Departmental Competitive examination conducted by CAPFs.

Assistant Commandant (Technical)

30. Minimum qualifications is BSc (Physics, Chemistry & Mathematics) and above with Electronics stream are deputed for appointment in the rank of Assistant Commandant (Technical) form the executive posts, after they undergo Battalion Signal Officers Course. These officers later on work in higher posts in hierarchy, apart from performing General duties in various ranks, since these Officers are also part of General Cadre of Officers.

31. **Eligibility Criteria for Entries into Police & CAPF**.

Rank	Age	Educational Qualification	Enrolment Criteria	Relaxation	Physical Standards	
Inspector	20 to 25 years	Degree of a recognized University or equivalent	33% of SI (GD) are filled by Direct recruitment (Including 10% from ESM), 50% by promotion, 17% by limited Departmental	Relaxable for SC/ST/OBC in accordance with the instructions issued by the Govt from time to time.	Height -170 Cms	Relaxable by 5 cms for candidates from Hill areas
					Chest - 80-85 Cms	77-82 cms for STs
					Weight - Proportionate to height	-do-
Assistant Sub Inspector	18 to 25 years	Matric with 3-year Diploma in Radio and TV technology / Electronics / Tele-Communications / Computer		Relaxable for SC/ST/OBC in	Height Gen-170 Cms	Tribal/Adivasi-162.5 Cms

Radio Mechanic		/ Electrical / Mechanical / Engineering / Domestic appliance from an Institution recognized by State/Central Government or 10+2 or Intermediate or equivalent with Physics, Chemistry and Mathematics, having 50% marks in Physics, Chemistry and Mathematics from a recognized Board		accordance with the instructions issued by the Govt from time to time.	Chest - 80-85 Cms	77-82Cms for STs
					Weight - Proportionate to height	-do-
Head Constable (Operator)	18 to 23 years	Matric or equivalent plus two years ITI certificate in Radio and TV/ Electronics or Intermediate or 10+2 or equivalent with Physics, Chemistry and Mathematics from a recognized Board of Education		Relaxable for SC/ST/OBC in accordance with the instructions issued by the Govt from time to time.	Height -170 Cms	Relaxable by 5 Cms for candidates from Hill areas
					Chest - 80-85 Cms	77-82Cms for STs
					Weight - Proportionate to height	-do-
Head Constable (Fitter)	18 to 23 years	Matric or equivalent plus two years ITI certificate in engine/fitter/Diesel Mechanic/Automobile/Motor Mechanic from an Institution recognized by State/Central Government or equivalent or 10+2 or Intermediate or its equivalent with Physics, Chemistry and Mathematics from a recognized Board of Education		Relaxable for SC/ST/OBC in accordance with the instructions issued by the Govt from time to time.	Height -170 Cms	Relaxable by 5 Cms for candidates from Hill areas
					Chest - 80-85 Cms	77-82Cms for STs
					Weight - Proportionate to height	-do-
Constable	18 to 23 years	Matriculation/10th / 12th class pass		Relaxable for SC/ST/OBC in accordance with the instructions issued by the Govt from time to time.	Height (cms) Male -170 Female – 157	Relaxable by 5 Cms for candidates from Hill areas
					Chest - 80-85 Cms	77-82Cms for STs
					Weight - Proportionate to height	-do-

32. The aspirants seeking employment into the Police & CAPF must go through their respective websites of Police & CAPF to ascertain the latest enrolment conditions which are notified from time to time.

CONCLUSION

33. Career prospectus into armed forces, police, other Police Investigation agencies, law enforcement agencies, Central Para Military Forces and State Police organizations are controlled and recruited by their respective head of departments by online registrations. A candidate if desirous mandatorily has to register individual online after entering his criteria. As and when the vacancies are allotted by UPSC, Central Staff Selection Commission, State Public Service commission or any other Government agencies, intimation to individual is given via Email or in website. Service in Police organization and Central Para Military Forces is also a better career options to serve the country

SUMMARY

1. The Indian Army has seven Commands ie. Northern, Western, Central, Southern, South Western, Eastern and Training Command.

2. The Navy is organised into three Commands i.e Western Naval Command, Eastern Naval Command and Southern Naval Command.

3. The Air Force is organized into seven commands i.e Western Air Command, Central Air Command, Eastern Air Command, South Western Air Command, Southern Air Command. Training Command and Maintenance Command.

4. The Combat Commands of Indian Army comprises Corps, Division and Brigades. These are commanded by an Officer of the rank of Lieutenant General, Major General and Brigadier respectively.

5. There are three major categories of army based on their role:-

(a) Fighting arms - Armour, Infantry and Meachanised Infantry.
(b) Supporting Arms- Artillery, Engineers, Army Aviation, Army Air Defence and Signals.
(c) Supporting Services – Army Service Corps, Army Medical Corps, Army Ordnance Corps, Corps of Electronic and Mechanical Engineers etc.

6. Field Marshal is an honorary rank given to a General for his invaluable services rendered to our country.

7. Admiral of the Fleet is an honorary rank given to an admiral for his invaluable services and will continue to serve the rest of his term with the honorary rank.

8. Marshal of the Air Force is an honorary rank given to an Air Chief Marshal for his invaluable services.

9. Indian Armed Forces render honours and awards to the personnel excelling during peace and war.

10. **Entry into Police Services as an Officer**.

(a) Passing All India Civil Services Examination conducted by All India UPSC Civil Services Examinations.
(b) Promotions from State Cadre Police Services.

11. The other Police organizations are as under:-

(a) Border Security Force.
(b) Central Industrial Security Force.
(c) Central Reserve Police Force.
(d) Indo-Tibetan Border Police.
(e) National Security Guards.
(f) Special Protection Group.
(g) Sashastra Seema Bal (SSB).
(h) Central Bureau of Investigation.
(j) Indian Income-tax Department.
(k) Directorate of Revenue Intelligence.
(l) Central Economic Intelligence Bureau.
(m) Directorate General of Central Excise Intelligence.
(n) National Investigation Agency.
(o) Narcotics Control Bureau.
(p) Bureau of Police Research and Development (BPRD).
(q) National Crime Records Bureau (NCRB).
(r) Central Forensic Science Laboratory.
(s) National Institute of Criminology and Forensic Sciences.
(t) State & Union Territory Police.

12. Other Central Investigation and Intelligence Agencies are as under:-

(a) Central Bureau of Investigation.
(b) Indian Income-tax Department.
(c) Directorate of Revenue Intelligence.
(d) Central Economic Intelligence Bureau.
(e) Directorate General of Central Excise Intelligence.
(f) National Investigation Agency.
(g) Narcotics Control Bureau.
(h) Bureau of Police Research and Development (BPRD).
(i) National Crime Records Bureau (NCRB).
(j) Central Forensic Science Laboratory.
(k) National Institute of Criminology and Forensic Sciences.
(l) State Police.
(m) Reserved State armed police forces & their Role.
(n) Criminal Investigation Department.
(o) Traffic police.

13. **Central Armed Police Forces Cadre and Personnel**.

(a) Gazetted Officers.
(b) Subordinate Officers.
(c) Constables.

CHAPTER I: INTRODUCTION TO MAP READING

MAPS, CONVENTIONAL SIGNS, SCALE AND GRID SYSTEMS

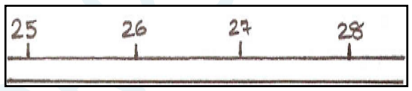
Definition of Map

1 A map represents selected natural and manmade features of the whole or part of the earth's surface on a sheet of paper. It has a definite scale and correct relative geographical positions and elevations. Symbols, colour differences and contours on map help to show the physical features *i.e*. mountains, valleys and plains. Maps show important natural and cultural features such as relief, vegetation, water bodies, cultivated land, settlements, and transportation networks, etc. These maps are prepared and published by the National Mapping Organisation of each country. The science of making maps is called as Cartography. For example, the Survey of India prepares the topographical maps in India for the entire country. A map, however, has one major limitation that it cannot show everything that exists on the ground.

Conventional Signs

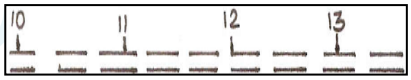
2 Conventional signs are symbols used to represent certain artificial or natural features/objects on the map. Some common types of conventional signs are listed as follows in Figure - 1

(a) Roads-metalled with Km-stone.



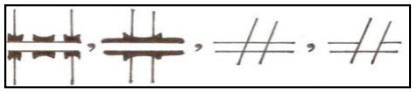
(b) Roads-unmetalled with Km-stone.

(c) Cart track, camel track, mule path.

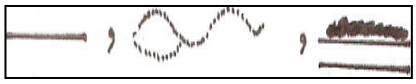


(d) Footpath, road in bed of stream, Level crossing.

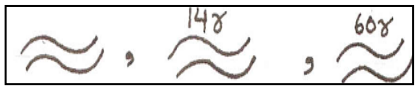
(e) Bridges with pier sand without, Causeway, Ford.



(f) Stream-Approx water course, canal River banks, shelving, steep 10 to 20 feet,, over 20 feet.



(g) River beds-dry, with stream, With island and rocks.

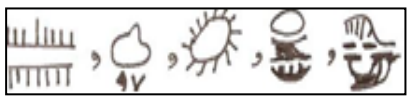


(h) Tidal river-shoal-submerged rocks.

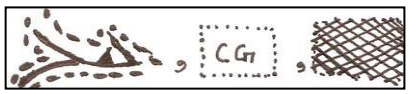
(i) Wells-lined and unlined, spring, Tanks- perennial and dry.

(j) Kaeaz - in, flow and dry, swamp, Reeds.

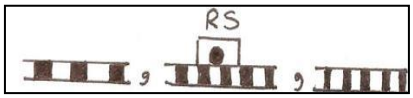
(k) Embankments, road or rail, tank cutting tunnel.



(l) Broken ground, camping ground, Vineontrellis.



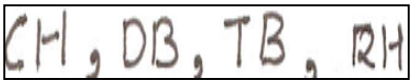
(m) Railways, broad gauge, Double, Single (Station), under construction.



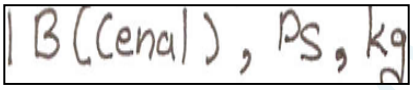
(n) Railways other Gauges, double, Single (milestone) and under Construction.

(o) Light railway or tramway, Telegraphline.

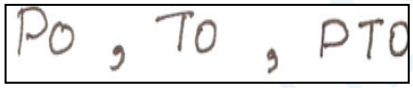
(p) Circuit house, Dak, Travellers, Bungalow, Rest House.



(q) Inspection bungalow, Police station, Buddhist Kyaung.



(r) Post office, telegraph office, Combined office.



(s) Forest-reserved, state and protected.

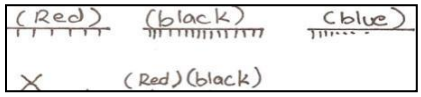
(t) Spaced names, Administrative, Locality, tribal.

(u) Villages: open, walled, ruined, Deserted antiquities.

(v) Huts, permanent and temporary, Fort, Tower chhatvi.

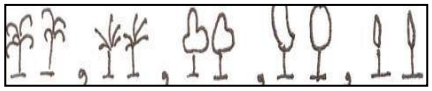
(w) Church, Mosque, Temple, Pagoda, Idgah, tomb.

(x) Dams, masonry and Earthwork-work.



(y) Grass high and low cane, Bamboo plantation.

(z) Palms, Areca, palmyra, Other conifer, other trees, scrub.



(aa) Contours, Form lines, Rocky slopes.

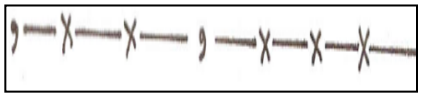
(ab) Cliffs-sand features.

(ac) Moraine, Glacier, Screen.

(ad) Boundary demarcated; International.

(ae) Boundary demarcated; Province or state.

(af) Boundary un-demarcated; International, province or state.



(ag) Boundary; district or Tribal.

(ah) Boundary; Sub Divisional, Tehsil, Taluka or township forest.

(aj) Boundary pillars, surveyed, not found.

(ak) Graves, oil wells, Mine-Battle field with year.

(al) Heights triangulated, Bench Mark.

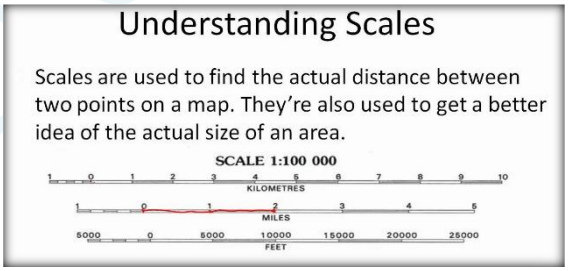
SCALES AND GRID SYSTEMS

Scale

3. Scales help us work out distance to our destination and therefore how long it will take us to get there. The smaller the area a map covers, the larger the scale will be. So if you have a map on a square meter of paper and the scale of the map is 1:50,000 and another map on the same size paper with a scale of 1:25,000, the area covered by the first map will be 4 times the area covered by the second map. Every map will carry a scale, not just the value of say 1:50,000, but also a depiction of that scale.

Definition

4. Scale is the proportion which the distances between the two points on the map that relates to the distance between two points on the ground. Everything on the map must be reduced and the extent to which the size is reduced makes the scale of the map.



Methods of Expressing a Scale

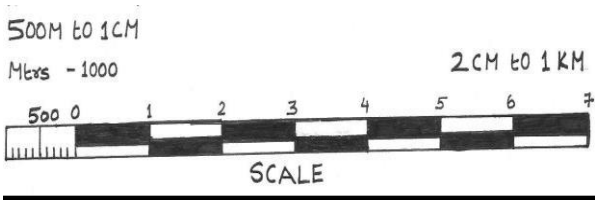
5. There are two methods of expressing a scale:-

(a) **In Words**. 1 inch to 1 mile, it means that 1 inch on the map represents 1 mile on the ground.

(b) **As a Representative Fraction (RF)**. This is the scale expressed in the form of a fraction. If the scale of a map is given as 1/100000 this means that one unit of the map represents 100000 of the same unit on the ground. It could mean that one centimetre on the map represents 100000 cm on the ground.

Scale Line

6. Below the scale is the scale line by means of which distance on the map can be measured. In this scale 2 cm on map is equal to 1 km on ground. An example of the scale line for a scale "2 cm to 1 km" is as shown.



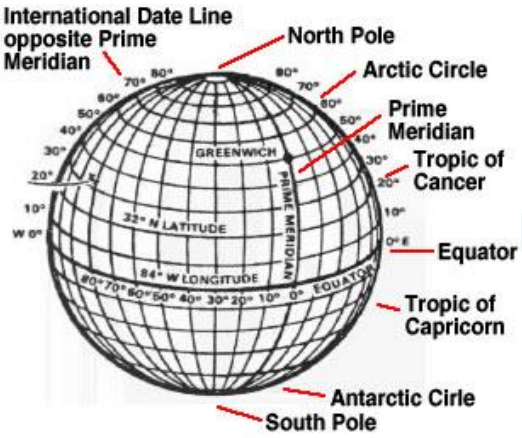
Definition of Grid and Grid Lines

7. The 'Grid' is a systematic pattern on Earth by laying a vertical and horizontal grid over the Earth's layout. The vertical lines are called the longitude and the horizontal lines are known as the latitude. Combinations of these lines are known as Grid Lines.

Purpose

8. The purpose of Grid Lines is to make possible giving and reading Grid References and to facilitate measurement of bearings.

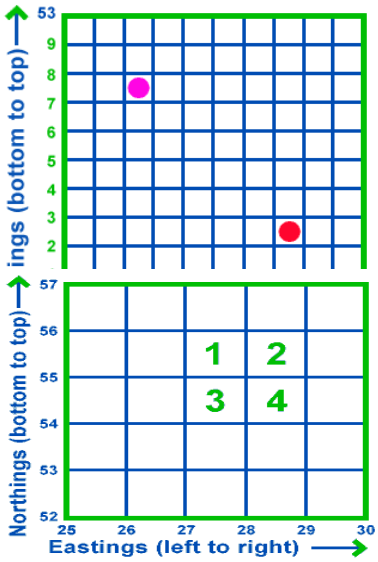
Method of Grid Reference



9. In giving a Grid Reference following rules should be remembered:-

(a) A reference must always contain an even number of figures, normally it contains six figures.
(b) EASTING lines are the black colour vertical lines.
(c) NORTHING lines are the black colour horizontal lines.
(d) Always count along the **EASTING** lines first from the WEST to EAST and then **NORTHING** from SOUTH to NORTH.
(e) Grid References are of different types viz. Four Figure, Six Figure, Eight Figure and Ten Figure.
(f) Mostly Six Figure Grid Reference is used.
(g) For six figure Grid Reference the third and the Sixth figure represent the divisions of 1000 meters square to the nearest 10th part, so they have to be estimated and for these figures a slight latitude is allowed.
(h) If a general Grid Reference is to be given or there is only one such object in one square e.g. bridge, temple, road junction then its identity and four figure grid reference would suffice.

10. **Example**



(a) As we already said when giving a four figured grid reference, always give the Easting number first and the northings number second. In the diagram, the number 4 is in square 28 across (on the horizontal) and square 54 up (on the vertical) and therefore, the four-figure grid reference is '2854'.

(b) The other number in the square above would get the following grid:- 2755; 2855; 2754; 2854.

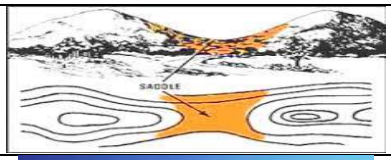
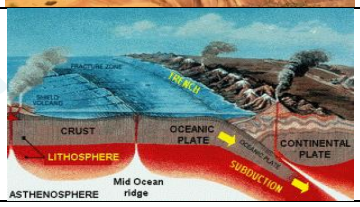
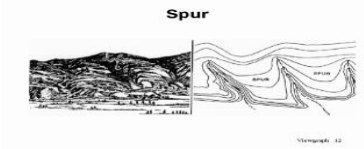
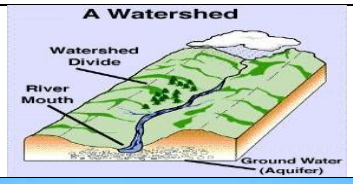
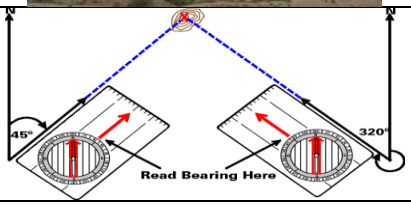
(c) In order to be little more precise with your grid references, you can give a 6 figure grid reference as shown in diagram 5b.

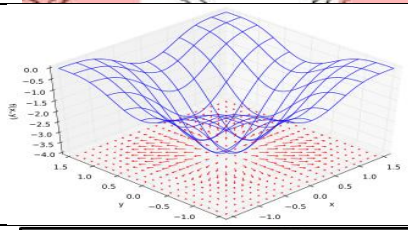
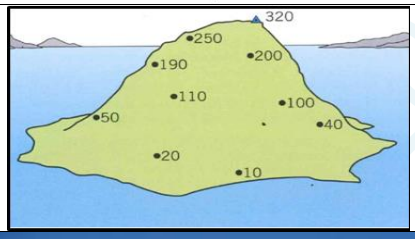
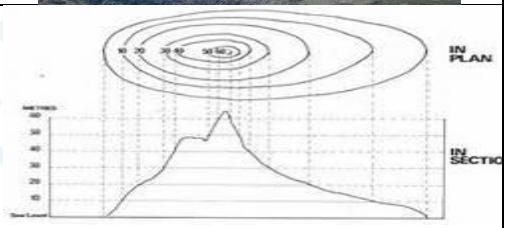
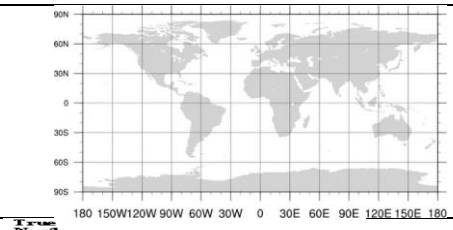
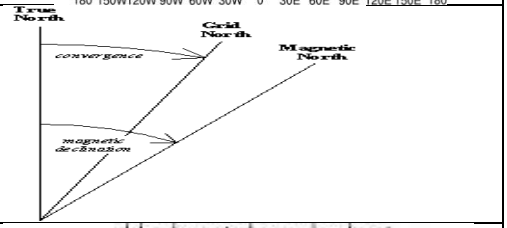
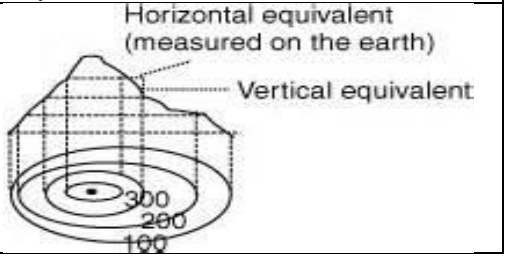
(d) Here, we have taken the lower right square from the previous diagram and divided it by 10 in each direction. The circle is in the four-figure grid reference square '2552', but more accurately it is 2 tenth across and 7 tenths up with in that enlarged grid square, therefore the six-figure map reference is '252527'. The circle has 6 figure grid references of 257522.

Topographical Forms and Technical Terms

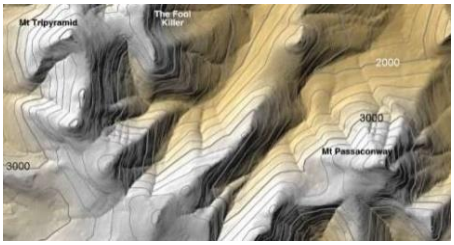
11. **Topographical**. forms are names used to describe geographical features which occur on the ground. The following are more commonly used:-

S No	Topographical Forms	Samples
(a)	**Basin:** An area of fairly level ground surrounded by hills or the area drained by a river or its distributaries.	

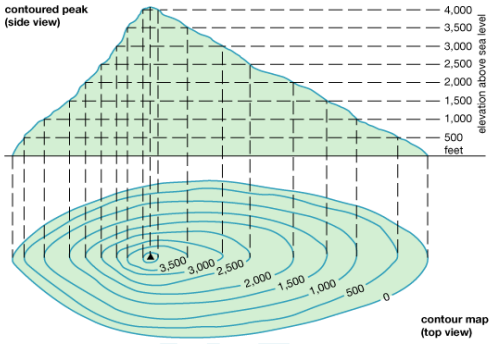
(b)	**Col or saddle:** A narrow ridge of high land joining up to higher hills.	
(c)	**Crest:** A highest part of hill or mountain range. It is that line on the range of hills or mountains from which the ground slopes down in opposite direction.	
(d)	**Dead Ground:** Ground which because of undulations or hills is not visible to the observer.	
(e)	**Knoll:** A small isolated hill.	
(f)	**Plateau:** A table land, an elevated region of considerable extent generally of same level.	
(g)	**Ridge:** A line along a hill or range of hills or mountains from which water flows in opposite directions.	
(h)	**Spur:** A piece of high ground jutting out of range of hills into lower ground.	
(i)	**Watershed:** The line separating the water flowing in two different rivers systems, the edge of a river basin.	
(j)	**Defile:** Any feature whether natural or artificial which could cause a body of troops to contract its front. An example of a natural defile is mountain pass while bridge is an example of an artificial defile.	
(k)	**Escarpment:** The steep hill side formed by a sudden drop in the general ground level usually from a plateau.	
(l)	**Bearing:** The angle formed by a line joining two points and the North and South line. Bearings are always measured clockwise.	

(m)	**Bench Mark:** A permanent mark usually cut into a wall recording exact height for future reference. It is marked as BM with height on Ordnance Survey Maps.	
(n)	**Gradient:** The slope of a hill expressed as a fraction.	
(o)	**Spot Height:** A point on a map whose height has been determined by Survey methods. These are usually shown as block dot with a number giving exact height above sea level in meters.	
(p)	**Trigonometric Point:** A point fixed during the triangulation at the beginning of a survey, marked on Ordnance Survey Maps by a small triangle with the height.	
(q)	**Contours:** A line drawn on the map joining up all points of equal height above sea level.	
(r)	**Grid Lines:** Lines running parallel to and at right angle to a North and south or East and West, Grid North is the direction of the North South grid lines on a map.	
(s)	**Magnetic Variation:** The difference between True North and Magnetic North.	
(t)	**Horizontal Equivalent:** The distance measured on the map between adjacent contour lines. It varies according to the nature of the relief.	

Relief, Contours and Gradients



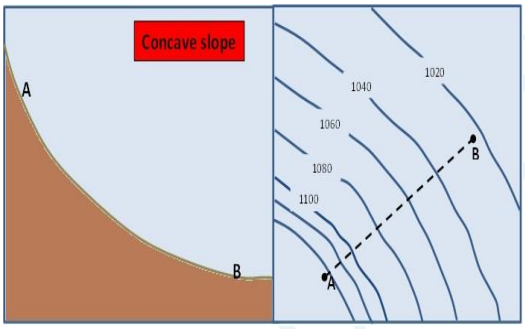
12. **Relief** means the shape of the ground in a vertical plane. Representation of a relief on a map means showing of heights and shape of the ground above or below or datum which is normally sea level. Thus it shows the broad features and relative heights of highlands and low lands which are portrayed on the map. **Relief** is shown with means of hachure, shading, form lines, layer tints, contours, spot heights, trig heights, bench marks and relative heights.

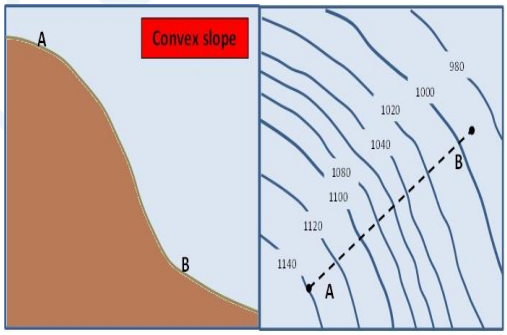


13. **Contour** is an imaginary line drawn on map showing same height from mean sea level. If you walk along a contour line you neither gain nor loose elevation. The Contours have following characteristics:-

(a) Contours accurately show height, shape and slope of the ground.
(b) Contours are shown generally in brown.
(c) Height is marked on every fifth contour.
(d) Contour lines vary in appearance.
(e) These lines never touch or cross each other.

14. **Slope** means a surface of which one end or side is at a higher level than another. Contour lines represent to slope that is, closer the contour lines are, the steeper is the slope of the hill. If representation of slopes the contour lines are far apart, the slope down is gradual. The slopes are of two types, convex and concave. A convex slope is the one which bulges outwards and concave slope is the one which curves inwards.





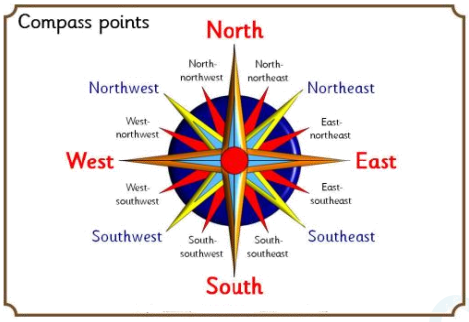
15. **Gradient** is the slope of the ground expressed as the angle the ground makes with the horizontal A gradient of 1 in 15 means that in a horizontal. The horizontal equivalent is obtained by measuring on the map and vertical interval by subtracting the contour heights. You may often need to know just how steep a piece of ground is, whether a road is too steep for a certain type of vehicle to negotiate. The gradient can be worked out quickly from a contoured map. The rise or fall of a slope can be expressed in following two ways:-

(a) In an Angle or Degree of Slope.
(b) The tangent of the Angle or Gradient.

CARDINAL POINTS AND TYPES OF NORTH

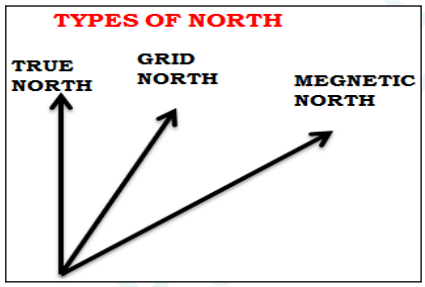
16. **Cardinal Points**. North, South, East and West are known as the cardinal points. If the North point is taken as zero degrees, East will be 90^0, South will be 180^0, and the West point forms an angle of 270^0. In addition to four Cardinal Points and four intermediate four major directions, there are eight minor directions. The names and degrees are as under:-

(a) North North East - 22 & ½ Degrees
(b) East North East - 67 & ½ Degrees
(c) East South East - 112 & ½ Degrees
(d) South South East - 157 & ½ Degrees
(e) South South West - 202 & ½ Degrees
(f) West South West - 247 & ½ Degrees
(g) West North West - 292 & ½ Degrees
(h) North North West - 337 & ½ Degrees



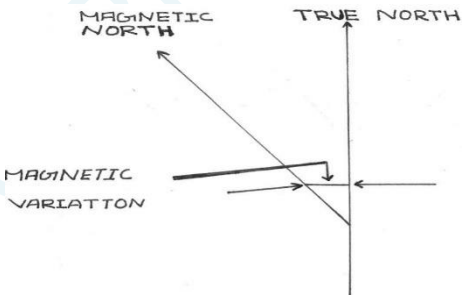
17. **Types of North** There are three types of North :-

(a) **True North**. The direction of North Pole from the observer.
(b) **Grid North**. North as per the Grid on map.
(c) **Magnetic North**. It is the point to which a magnetic needle points, when freely suspended.



Magnetic Variation and Grid Convergence

18. **True North is Constant**. Magnetic North is the point to which the compass needle points. The needle does not point directly to True North, but a little West or East of True North. The point towards which the needle swings is known as Magnetic North and the difference between True North and Magnetic North is called Magnetic Variation. The amount of the Magnetic Variation depends upon two factors, time and place as at Fig below.



Magnetic Variation

19. **Time**. The Variation is not constant but is, gradually changing and even the change each year is not constant but the difference being negligible it is taken to be constant. On the top margin of a map will be found a statement giving the Magnetic Variation. To bring this up-to-date, the year of issue of the map must be noted and for every year that has passed since then the applicable change annually subtracted or added from the figure given as applicable.

20. **Place.** The amount of the Magnetic Variation also changes in different parts of the world and indeed in different parts of the country.

Grid Convergence

21. The angular difference between Grid and True North is called the Angle of Convergence or the Grid Convergence.

CONCLUSION

22. Knowledge about Cardinal points and types of North is the first step towards learning map reading. This knowledge is necessary not only with respect to maintaining direction during navigation; but also comes handy in our other daily activities. A good navigator has the ability to quickly orient himself as per the cardinal directions almost naturally; this helps in getting a sense of direction and helps to find out our own position subsequently.

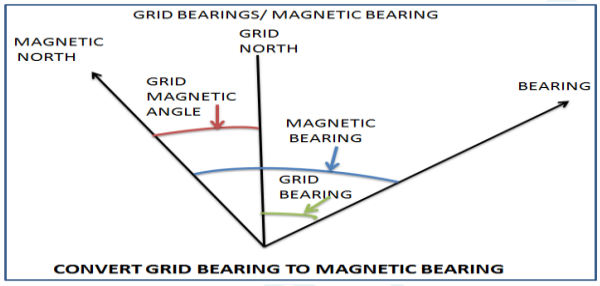
CHAPTER II : CONDUCT OF MAP READING

TYPES OF BEARING AND USE OF SERVICE PROTRACTOR

Bearing and Its Conversion Methods

1. **Types of Bearing.** The clock wise angle formed by a straight line joining two points and direction of NORTH, is called the bearing between the two points. A bearing is always measured clockwise. They are three types as given below:-

(a) **Grid Bearing**. Measured on the map from the Grid North by the help of a protractor.
(b) **Magnetic Bearing**. Measured from Magnetic North by the compass.
(c) **True Bearing**. Calculated by finding out the relation of True NORTH and Grid NORTH or Magnetic NORTH.



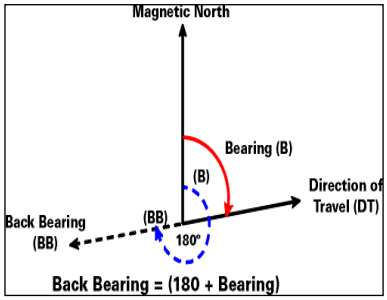
2. **To Convert a Magnetic Bearing to a Grid Bearing**. Suppose the bearing of a certain point P is measured with a compass and is found to be 160^0. To convert this Magnetic Bearing to a True Bearing, follow under mentioned steps:-

(a) First find out the Magnetic Variation of the Area. Magnetic Variation is given on the Top Right corner of each Map.
(b) Suppose 5^0 is the Magnetic Variation of the area. Now subtract this Magnetic Variation to the Magnetic Bearing.
(c) The resultant is the Grid Bearing i.e. 155^0

3. **To Convert Grid Bearing to Magnetic Bearing**.

(a) Measure the Grid Bearing of an object on the map with help of the service protractor from your own position.
(b) Suppose the Grid Bearing of the object is 150^0.
(c) Now, find out the Magnetic Variation of the area with the help of Map (Magnetic Variation is given on the Top right corner of the map). Suppose Magnetic Variation of the area is 6^0.
(d) Now, add this Magnetic Variation to the Grid Bearing.
(e) The resultant will be the Magnetic Bearing of the object i.e. 156^0.

4. **Back Bearing**. It is bearing taken opposite of original position of object. The rule is that if the bearing is less than 180^0 add 180^0 and if bearing is more than 180^0 then subtract 180^0. For example:-
(a) If forward bearing of an object is 70^0 then its back bearing will be $180^0 + 70^0 = 250^0$.
(b) If forward bearing of an object is 240 then its back bearing will be $240^0 - 180^0 = 60^0$.

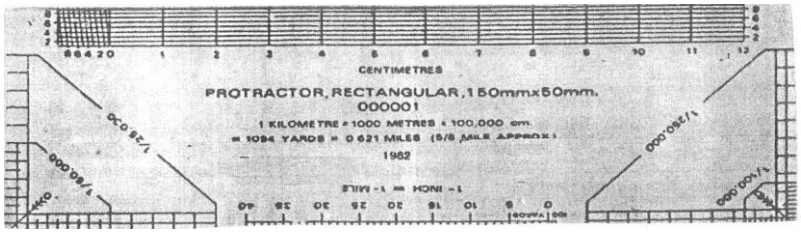


Service Protractor and its Uses

5. The service protractor "A" Mark IV is an instrument used for plotting and measuring bearing on the map. It is an essential link between the compass and the map. With the help of the protractor the magnetic bearings have been converted to grid bearing and transferred to the map.

Description

6. The protractor is made of cardboard or ivories (flexible material) and it measures 6 inches long and 2 inches wide.



Scale of Protractors

7. The main purpose of the protractor is to measure angles and bearings as described in the preceding

paragraphs. The protractor also shows on both its faces a number of the more common map scales. The respective scale lines are drawn out and divided into primary and secondary divisions in exactly the same way as at the bottom of the map.

Measuring a Bearing

8. The angle can be measured by drawing a line from the graduation to the point zero on the protractor. The required angle will be the gap between this line and the line joining the zero.

Uses of Protractor

9. The service protractor is an essential item of Map Reading. With its help one can:-

(a) Plot and measure bearing on paper or on a map. For bearing between 0 and 180 degrees their Zero edge must be on the LEFT and for 180 degrees -360 degrees it must be on the RIGHT.
(b) Measure distance in inches / cm correct up to l/100th
(c) Measure distance in yards, meters or miles on a map by using the appropriate scale
(d) For using the diagonal scale one must use an intermediate agent. Mark off the distance to be measured on the straight edge of a paper or by means of a divider and then put the paper or divider on the diagonal scale and measure.

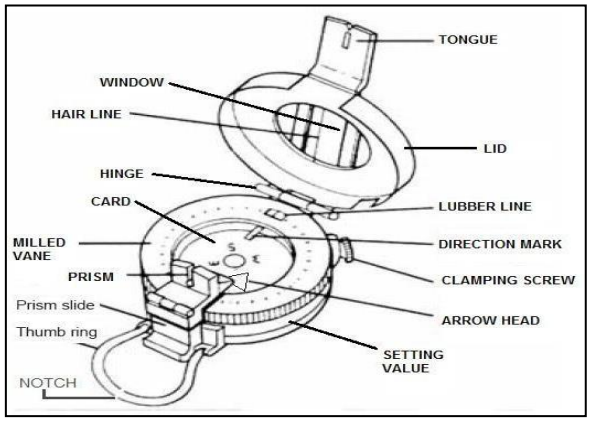
Prismatic Compass & Its Use and GPS

10. The magnetic compass an instrument containing a magnetized pointer which shows the direction of magnetic north and bearings from it. The magnetic compass is used extensively in ships, aircraft and the various branches of the army to find and maintain direction. The Prismatic Compass is an accurate and reliable instrument of great value except during a "magnetic storm" or when subject to strong local magnetic field e.g. in polar regions. With the prismatic compass one can measure magnetic bearing on the ground.

Types of Compass and Acquiring A Bearing

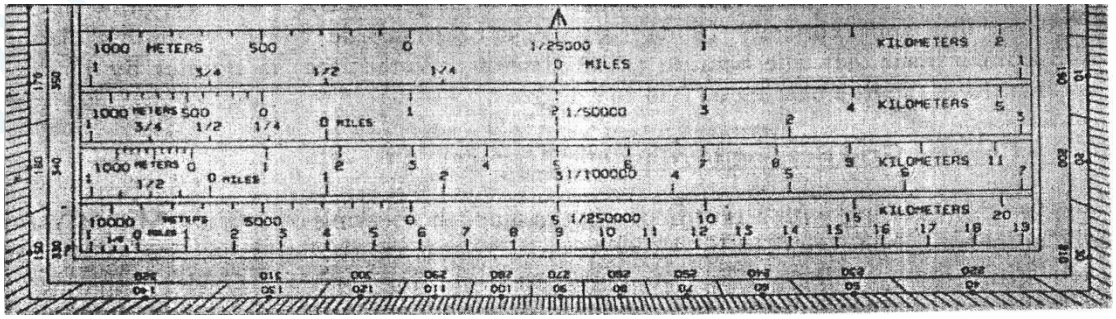
11. **Types of Compass and Taking Bearing**. There are two types of prismatic compass, the dry and liquid filled. Liquid type is easier to use though it is less sensitive.

12. **Description**. Various parts are shown below:-



13. **How to Take a Bearing**

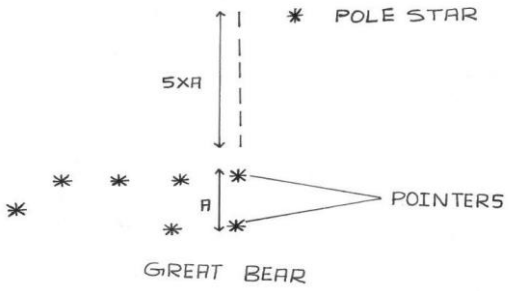
(a) Open the lid of compass.
(b) Turn the prism casing over.
(c) Put your thumb through the ring.
(d) Put your forefinger underneath the compass & hold it to horizontal level.
(e) Bring the prism up to the eye.
(f) See through the prism via hairline to object.
(g) Read the bearing.



Navigation by compass and GPS

14. **Navigation by Compass.** Sometimes it may be necessary to march by night or in thick jungle area in the direction of a certain point; since the point may not be visible in darkness or thick vegetation. In such a situation follow the steps mentioned below:-

(a) Calculate the bearing from the Map i.e Grid Bearing
(b) Convert it to the magnetic bearing and cater for the compass error to arrive at a figure (say 250 degree), the compass must now be set to this figure to march on it.
(c) Unscrew the clamping screw
(d) Rotate the milled vane to 25 till it comes exactly on the "lubber line"
(e) Tighten the clamping screw
(f) Compass is now set for 250 degree
(g) To obtain the direction of march, open the lid fully and keep the compass on the palm.
(h) Now turn left or right till arrow head comes under the direction mark
(i) Direction of march is given by the direction in which tongue is pointing.



15. **Compass Error**. Sometimes due to the presence of impurities in the material of which a compass is made or other reasons, the magnetic needle may not point toward the magnetic NORTH but a little to the EAST or WEST of it. This deviation of the magnetic needle in the compass from the magnetic NORTH is termed compass error.

16. **Global Positioning System**. Global Positioning System (GPS) refers to a system of satellites and receivers that allows people and devices to pin point their precise location on the earth. The first GPS satellite was launched in 1974. GPS is funded and controlled by the United States, Department of Defence. Present technology provides very handy and accurate navigation. GPS is used by:-

(a) Commonly used in day to day life by general public like.
(b) Commonly used in day to day life by general public like for travelling purposes.
(c) Fishermen and hikers to navigate.
(d) Armed Forces, inbuilt its equipment and in uses in battlefields.

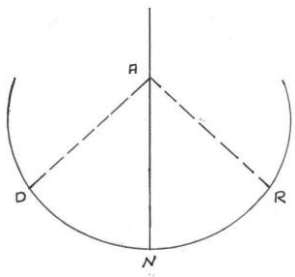
SETTING OF A MAP, FINDING NORTH AND OWN POSITION

Map Setting by Various Methods

17. **Setting of Map**. A map is said to be set or oriented when it is placed such that it corresponds directly with the ground i.e. when true NORTH on the map points to true NORTH on the ground. There are two methods of setting a map - by compass and by objects on the ground.

Setting by Compass

18. Draw a line showing magnetic NORTH from a point on a grid line. Open the compass and lay it flat on the map over the above drawn diagram, which will show the magnetic variation so that the hair line on the window lies along the magnetic NORTH line on the diagram. Then turn both the map and the compass till the needle points along the hair line. The map is now set, since the magnetic NORTH line on the map is pointing in the direction of magnetic NORTH as indicated by the compass needle.



19. **Finding North and own Position Without Compass**. The position of NORTH can be discovered by one of the following methods :-

(a) **Equal Altitude Method**.

(i) Take a fairly large piece of paper or card board and spread it flat on the ground. In the centre fix a pencil or piece of wood perpendicular to the ground. It can be done with the

help of a coin fixed at the base of pencil or wood with sealing wax or by directly pushing it in the ground.

(ii) Wait till after mid-day until the sun has moved around sufficiently to throw another shadow as indicated by the dotted line AD i.e. of the same.

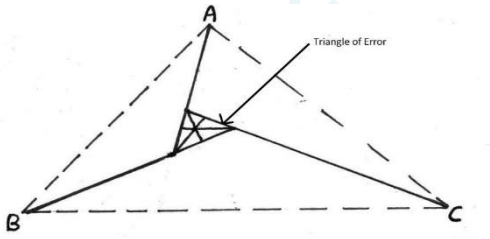
(b) **By Stars**. In the Northern hemisphere, the Pole star indicates the position of True North to within 2 degree. It is a bright star and it can be found by protruding a line from Great Bear. The pole star will be found slightly off this line on the side remote from the remaining stars of the Great Bear.

20. **Methods of Finding own Position on Map**.

(a) By resection method or Compass method.
(b) By Inspection method.

21. **Resection with Compass Method**.

(a) Recognise three prominent features (A, B, C) on map and on the ground as well. These three prominent features must not be more than 180 or less than 30 apart. They should be as far as possible and clearly visible. The bearing of these points be taken and converted into Grid bearings.



(b) Then, on the map the back bearings from these points must be plotted, and the point of intersection will be the required position.
(c) In order to do an accurate resection, three or more objects are necessary. But in that case if the three rays do not intersect at the same point, a triangle of error is obtained. The centre of triangle is the point of your own position.

22. **By Inspection Method**. By inspections is meant a careful and detailed study of the ground and features both on the map and the ground and features on the map and on the ground. The method consists of:-

(a) Setting the map.
(b) Recognition of general area of own position on the map.
(c) A close study of the ground details.

MAP TO GROUNG, GROUND TO MAP

Map to Ground

23. To find out the details of map on ground is known as map to ground. Following methods are used to identify objects from map to ground:-

(a) **Bearing and Distance Method**. With the help of bearing and distance, find out own position. Find out the distance of the object to be identified on ground with the help of a scale on the map. Using service protractor, find out the bearing of the object and convert it into magnetic bearing. Set the magnetic bearing on compass and look for the object in the given bearing. Estimating the distance on ground the object will be identified.

(b) **Direction and Distance Method.** Draw a line on the map between own position and object to be identified. Calculate its distance and using any of the following methods find the direction of the object:-

(i) With the help of a sight rule find the ground direction of the object.

(ii) With the help of two points on the map estimate the ground direction.

(iii) Place a foot ruler /pencil at own position and align it with line of the map.

(iv) Place a pin each at own position and at the object on the map. Align both pins and find general direction.

(c) **By Estimation Method.** In this method measuring bearing, distance and direction, object is identified with the help of other details in the proximity of the object.

Ground to Map

24. To find out an object indicated on ground on the map is called ground to map.

GOOGLE MAPS & APPLICATIONS

Google Maps

25. Google Maps is a web mapping service developed by Google. It offers satellite imagery, aerial photography, street maps, 360° panoramic views of streets (Street View), real-time traffic conditions, and route planning for traveling by foot, car, bicycle and air (in beta), or public transportation. Google Maps' satellite view is a "top-down" or "birds eye" view; most of the high-resolution imagery of cities is aerial photography taken from aircraft flying, while most other imagery is from satellites. Google Maps used a variant of the Mercator projection, and therefore could not accurately show areas around the poles.

Use of Goggle Maps & Applications

26. **Directions and Transit**. Google Maps provide a route planner, allowing users to find available directions through driving, public transportation, walking, or biking. Screen shot of Google Maps with traffic option enabled traffic conditions. Google offering traffic data as a coloured overlay on top of roads and motorways to represent the speed of traffic. Crowd sourcing is used to obtain the GPS-determined locations of a large number of cellphone users, from which live traffic maps are produced.

Business Listings

27. **Google** collates business listings from multiple on-line and off-line sources. To reduce duplication in the index, Google's algorithm combines listings automatically based on address, phone number, or geo code, but sometimes information for separate businesses will be inadvertently merged with each other, resulting in listings inaccurately incorporating elements from multiple businesses. Google allows business owners to verify their own business data through Google My Business, and has also recruited volunteers to check and correct ground truth data.

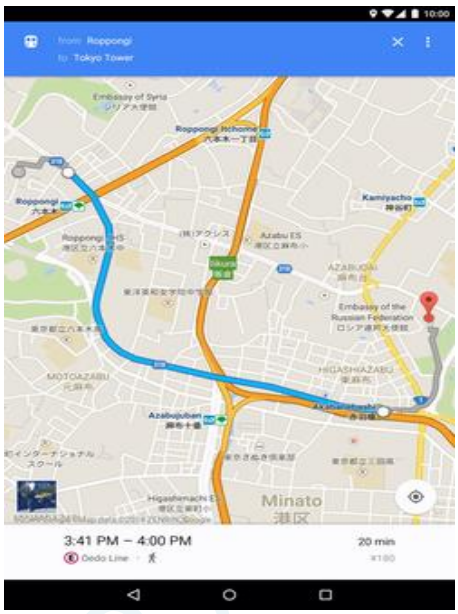
Indoor Maps

28. In March 2011, indoor maps were added to Google Maps, giving users the ability to navigate themselves within buildings such as airports, museums, shopping malls, big-box stores, universities, transit stations, and other public spaces (including underground facilities).

Google Local Guides

29. Google Local Guides is a program launched by Google Maps to enable its users to contribute to Google Maps and provide them additional perks and benefits for the work. The program is partially a successor to Google Map Maker as features from the former program became integrated into the website and app. The program consists of adding reviews, photos, basic information, videos and correcting information such as wheelchair accessibility.

Mobile App



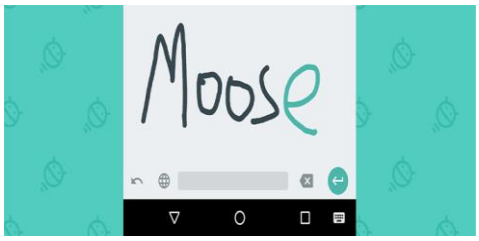
30. Google Maps is available as a mobile app for the Android and iOS mobile operating systems. The Android app was first released in September 2008, though the GPS-localization feature had been in testing on cellphones since 2007.Up until iOS 6, the built-in maps application on the iOS operating system was powered by Google Maps. However, with the announcement of iOS 6 in June 2012, Apple announced that they had created their own Apple Maps mapping service, which officially replaced Google Maps when iOS 6 was released on September 19, 2012. However, at launch, Apple Maps received significant criticism from users due to inaccuracies, errors and bugs.

Features

31. The Google Maps apps for iOS and Android have many of the same features, including turn-by-turn navigation, street view, and public transit information. Google Maps announced its new offline functionality, but with various limitations downloaded area cannot exceed 120,000 square kilo meters and require considerable amount of storage space. In January 2017, Google added a feature exclusively to Android that will, in some U.S. cities, indicate the level of difficulty in finding available parking spots, and on both Android and iOS, the app can, as of an April 2017 update, remember where users parked. In August 2017, Google Maps for Android was updated with new functionality to actively help the user in finding parking lots and garages close to a destination. In December 2017, Google added a new two-wheeler mode to its Android app, designed for users in India, allowing for more accessibility in traffic conditions.

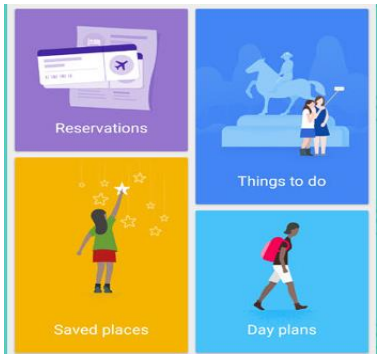
Applications

32. Here are eight off-the-beaten-path Google apps that'll help you do all sorts of interesting things with your Android device. And yes, they're all free. (Some, but not all, are also available for iOS.)



(a) **Google Handwriting**. Input ever feel like scribbling something out on your smartphone's display? Google Handwriting Input gives you a blank slate for writing with your finger or a stylus and then converts your illegible chicken scratch into actual send able text. It works surprisingly well, and it can even handle e- mails (if you for some reason are inspired to draw those). The best part about Handwriting Input is that it works, hand-in-hand with Google's regular, fully-featured G-board keyboard. Once you install and activate the app on your phone, you'll see a new globe-like icon in G-board's bottom row.

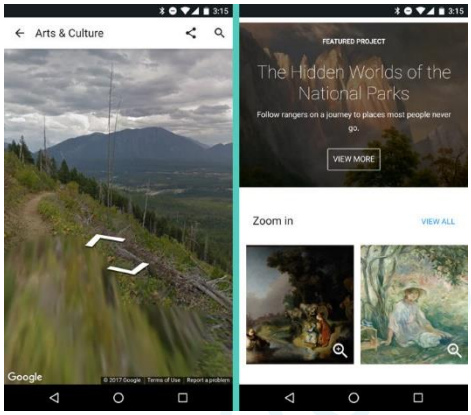
(b) **Trusted Contacts**. This so-new-it-still-has-that-new-app-smell tool is one of those things that's so practical, you'll wonder why your phone hasn't always had it. Trusted Contacts lets you establish location-sharing relationships with your friends, family members, or anyone else you know and love (or maybe just kind sort like). Once both people have installed the app and approved the relationship, either person has the ability to request the other's location at any time. If the recipient doesn't respond after five minutes, his last known location will automatically be sent. And it works even if his phone is off or out of range. Take this mobile device management course from Plural Sight and learn how to secure devices in your company without degrading the user experience. Peace of mind has never been easier.



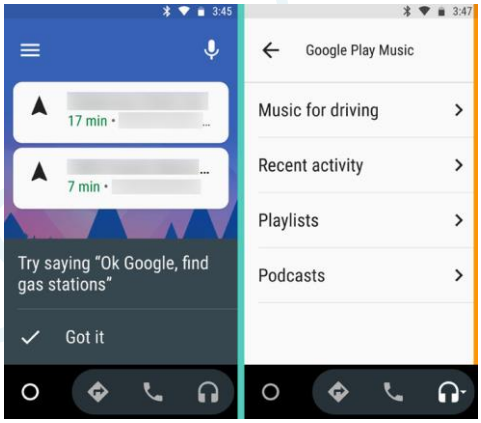
(c) **Google Trips**. Organizing travel can be a pain but if you're already using Gmail, Google's new-ish Google Trips app makes everything super simple. Trips automatically finds and imports all your travel info as it arrives in your inbox travel reservations, hotel reservations, and any other related confirmations and bundles it all together into neatly organized trip-based portfolios. It even adds in extra little goodies like suggestions for nearby attractions, popular

(and customizable) day plans, and restaurant recommendations. Once your data's pulled over, everything works offline.

(d) **Google Arts & Culture**. Google Arts & Culture lets you explore national parks and monuments, zoom up close into famous works of art, and even take virtual tours of entire museums right from your mobile device. The app views of fascinating things from around the world, and it's something you really have to experience for yourself.



(e) **Chrome Remote Desktop**. Chrome Remote Desktop is one of Google's most powerful cross-platforms tools and yet it doesn't get nearly enough attention. The app makes it dead-simple to remotely access any desktop computer from your Android phone. All you do is install the companion desktop Chrome extension, set up a PIN, and that's it: You can pull up your desktop on demand and access files, open programs, or do anything else you need from the palm of your hand.



(f) **Google Opinion Rewards.** You answer a handful of questions about a recent shopping experience or your thoughts on some type of merchandise, and then the app puts a credit on your Play Store account. It might be for 10 cents or it might be for a dollar. Either way, it takes practically no time to do, and the credits add up fast meaning your next app purchase or movie rental can be on the house.

(g) **Android Auto**. Google revamped its Android Auto app a few months ago and made it into something anyone who drives should have standing by. The new Auto app is basically a "car mode" for your phone an interface that's optimized for driving, with large buttons for commonly used commands and simplified access to the sort of stuff you might need while behind the wheel.(And yes, long time Android fans, that *should* sound familiar.)

(h) **Wallpapers** This last selection is actually the app that controls wallpaper picking for Google's new Pixel phone but if you have any other device, you can think of it as an upgrade to your system's built-in wallpaper picker. The aptly named Wallpapers makes finding a background for your home screen a fun adventure, with options for selecting stunning images from sources like Google Earth or the photographer-favored galleries of Google. The best part is that all of Wallpapers' categories Earth, Landscapes, Cityscapes, and so on include a "Daily wallpaper" option that'll automatically change your background to a different purity image every single day.

CONCLUSION

33. Map reading plays very major role in services as well as in governance system. These days digital maps and artificial intelligence has taken over majority usage thereby making such task easy and user friendly along with information technology. Setting of map and finding own position is the essence of the map reading training.It is important for the cadets to understand the methods and the procedure to find objects from map to ground and from ground to map. With the help of satellites and information technology companies like Google have taken over mapping system by using artificial intelligence making life faster and user friendly connecting Smart Phones with applications for map reading, navigation, tracking system, traffic and basic usage of our daily life.

SUMMARY

1. Map is the geographical representation of land on a paper.

2. Scale is a proportion of two points on map and two points on the ground.

3. Relief is applied to the shape of the ground in a vertical plane.

4. Contour is an imaginary line following surface of the ground at a certain level.

5. Gradient is the slope of the ground expressed as the angle the ground makes with the horizontal.

6. Cardinal Points are the four major directions North, South, East and West.

7. There are three types of North, True North is the direction of North pole. Magnetic North is the direction which a magnetic needle points, Grid North is the direction of the North South grid lines on a map-point.

8. Magnetic Variation is the difference between True North and Magnetic North. It depends on time and place.

9. Grid Convergence is the angular difference between Grid North and True North.

10. Bearing: The clock wise angle formed by a straight line joining two points and direction of North.

11. The service protractor “A” Mark IV is an instrument used for plotting and measuring bearing on the map.

12. Setting of Map: A map is said to be set or oriented when it is placed such that it corresponds directly with the ground. There are two methods of setting a map- by compass and by objects on the ground.

13. Methods to find own position on map are- by resection, by map spotting or by bearing and distance.

14. Types of navigation: Navigation during day and Night navigation.

15. Methods are used to identify objects from map to ground.
    (a) Bearing and Distance Method.
    (b) Direction and Distance Method.
    (c) By Estimation Method.

16. To find out an object indicated on ground on the map is called ground to map.

17. **Use of Goggle Maps & Applications Directions and Transit. Business Listings**.
    (a) Indoor Maps
    (b) Google Local Guides
    (c) Mobile App
    (d) **Applications**.

        (i) Google Handwriting.
        (j) Trusted Contacts.
        (k) Google Trips.
        (l) Google Arts & Culture.
        (m) Chrome Remote Desktop.
        (n) Google Opinion Rewards.
        (o) Android Auto.
        (p) Wallpapers

CHAPTER- I : INTRODUCTION TO FIELD CRAFT AND BATTLE CRAFT

INTRODUCTION

1. Field Craft is an important aspect of military training as it is the art of using the ground and the weapon to the best of one's own advantage. A quick, accurate and standard procedure is necessary to enable a commander to describe an area to his men and the men to understand it correctly. An individual should be able to judge distance accurately with his eyes so that the individual can decide on the following:-

(a) Know when to open fire.
(b) Know which weapon to be used.
(c) Can indicate targets to other men in his section.
(d) Pass back accurate information when acting as an observer.

Field Craft and Battle Craft

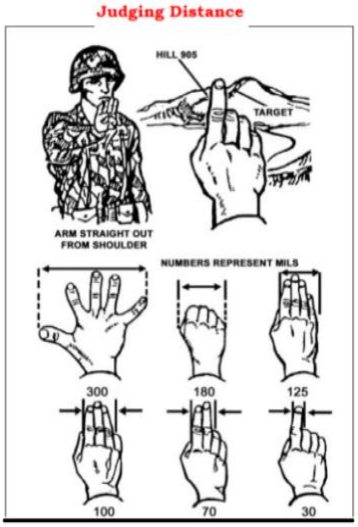
2. Field Craft includes the following subjects: -

(a) Visual Training.
(b) Recognition and description of targets.
(c) Personal camouflage and concealment.
(d) Judging distance.
(e) Movement with and without arms.
(f) Fire discipline and control.

3. Battle craft is nothing but set of drills which are essential for conduct of successful operations in the battle field. These battle drills are very useful in tackling minor tactical problems. They save time, ensure rapid action and avoid confusion. Knowledge of field signals and section and platoon formations, however, is essential in the execution of various battle drills. Battle Craft includes the following subjects:-

(a) Field Signals.
(b) Section Formations.
(c) Fire control orders.
(d) Fire and move.
(e) Section battle drills.

Judging Distance



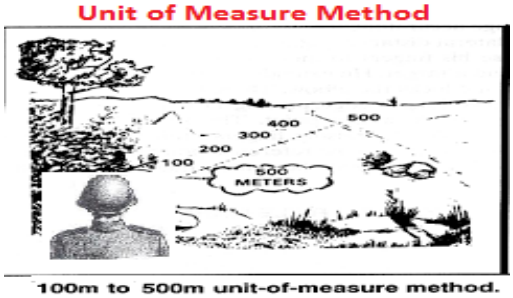
4. An individual should be able to judge distance accurately with his eyes so that the individual can decide on the following:-

(a) Know when to open fire.
(b) Know which weapon to be used.
(c) Can indicate targets to other men in his section.
(d) Pass back accurate information when acting.
as an observer.

5. **Methods of Judging Distance**. There are six methods of Judging distance. These are as under:-

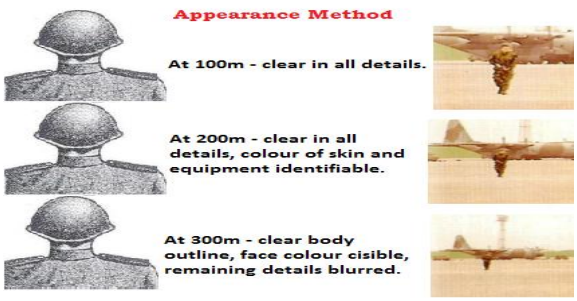
(a) Unit of measure.
(b) Appearance method.
(c) Section average.
(d) Key range.
(e) Halving.
(f) Bracketing.

6. **Unit of Measure**. This method is also termed as the 100 yards method. The unit of measure chosen is normally 100 yards and therefore one should form a good idea of 100 yards distance on the ground. The length of a hockey field is the best yard stick for this purpose. The distance of a given object will be a multiple of the imaginary unit of 100 yards, as placed between the observer and the object.

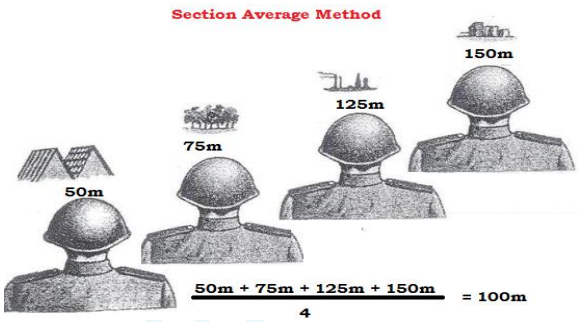


100m to 500m unit-of-measure method.

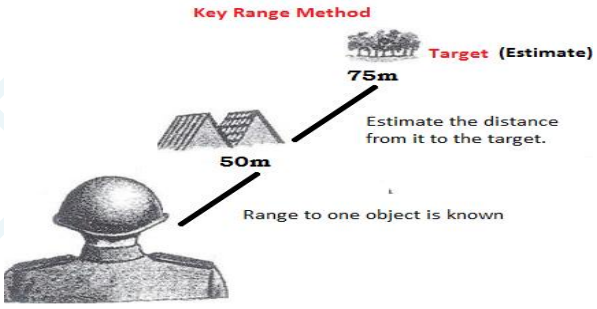
7. **Appearance Method**. The distance can be judged by noting the detailed appearance of man at various ranges.



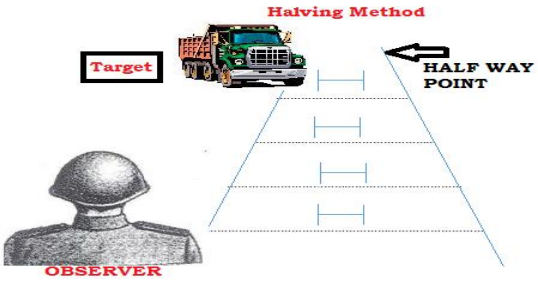
8. **Section Average**. Each man in the section is asked to judge the distance of a given object. The average of the answers given by the whole section is then accepted as the distance.



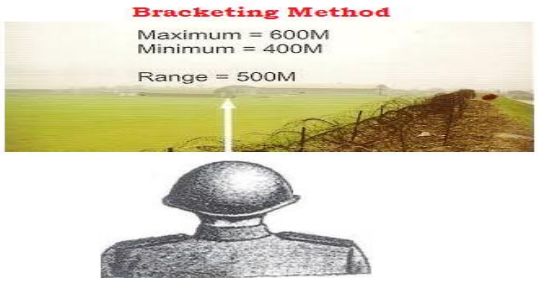
9. **Key Range**. If the range of the certain object is known, distance to other objects can be found in relation to the known range. This method is called "Key Range" method.



10. **Halving**. An object is selected half way between the observer and the target, the distance to the selected object is judged and doubled to get the distance to the target.



11. **Bracketing**. The observer works out the maximum and the minimum possible distances of the object and then accepts the mean as the distance.



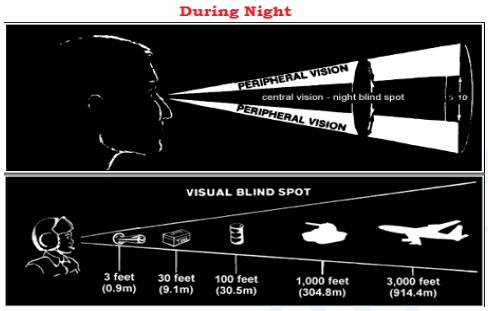
Practical Hints

12. **During Night**. Judging distance at night will depend upon the visibility. The only suitable method is the "Key Range". Therefore mark prominent objects and work out their distances while there is still day light.

During Day. Conditions which mislead the observer when judging distances are as follows:-

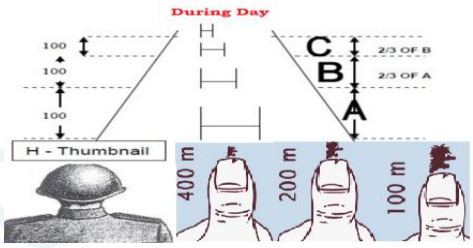
(a) Distances are overestimated when:-

(i) Light is bad.
(ii) The sun is in the observer's eye.
(iii) The object is small in relation to its surroundings.
(iv) Looking through a valley of narrow lane e.g. street.
(v) Lying down.



(b) Distances are underestimated when:-

(i) The light is bright or the sun is shining from behind the observer.
(ii) The object is large in relation to its surrounding.
(iii) There is some dead ground between observer and the object.
(iv) (iv)Looking uphill.



CONCLUSION

1. To achieve success in war it is very important that the target is correctly understood for mechanics of field and battle crafts are understood clearly. Knowledge of ground along with basic skills would be beneficial to cadets in all respect.

CHAPTER II – INDICATION OF LANDMARKS AND TARGETS

Introduction

1. Landmarks and other objects on the ground or a battle field may be either unclear due to climatic conditions or other reasons. Every effort should, therefore be made to indicate their location and size carefully and accurately. To ensure quick and accurate indication by commanders and recognition by individual soldiers a standard procedure has been laid down in the Army.

Definitions

2. **Landmarks**. An object, which is important on the ground and which is used in verbal orders to explain the ground in front.

3. **Target.** It is an object having a technical significance which is indicated with a view to bring down fire on it.

4. **Reference Point**. An important and unmistakable object, with the help of which you can indicate other land marks or targets. A reference point should be specific.

Types of Ground

5. **Broken Ground** It is uneven and is generally scattered with nullahs, bump sand fields in the ground. It is suitable for move of infantry.

6. **Flat and Open Ground**. It is even ground with little cover e.g. bushes, hedges and other foliage. It is not suitable for move of Infantry by day.

7. **High Ground**. Ground far above the general level of the area e.g. hill. It facilitates control of area around it by observation or fire.

8. **Dead Ground**. Ground that is hidden from an observer's view. It cannot be covered by flat path weapons.

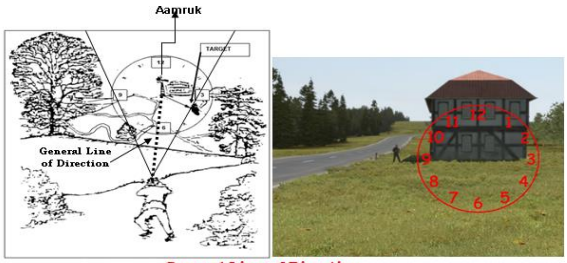
9. Though an open ground is easy to travel, it is dangerous to do so in the locality of the enemy. Whether moving or taking fire position in an open area one is exposed to enemy from view and fire. Broken ground when correctly used affords protection from flat path weapons. It does not afford cover from air or protection from high path weapons. Dead ground does not afford cover from high path weapons.

10. **Procedure Of Description**. The normal method of scanning and describing ground is by dividing it as follows:-

(a) Fore Ground up to 300 yards.
(b) Middle Distance from 300 yards to 500 yards.
(c) Distance beyond 500 yards.

Indication Of Landmarks

11. **General Line of Direction**. Start by giving the **general** line of direction by pointing out a centrally located, if possible, prominent land mark, e.g. No 1 section 500, RED HOUSE, class Red House and line beyond General Line of Direction (GLD).



General Line of Direction

12. **Boundaries**. After giving general line of direction give LEFT and RIGHT boundaries of your area. Divide the ground into foreground, middle and distance. Having done so start from LEFT to RIGHT systematically in a clockwise direction and describe the ground.

13. **Sequence of description**. While describing the ground bounded by particular arc after giving the boundaries start from LEFT to RIGHT. If the ground all around is to be described, start after general line of direction to the right and finish at general line of direction by completing the indication all around.

Methods of Indication Targets

14. **Easy Targets**. Can be indicated by the following methods:-

(a) **Indication by Description**. A noticeable target can often be described directly. For example "No. 1 Section BRIDGE". Here BRIDGE is so noticeable that nobody can make a mistake in recognizing it.

(b) **Indication by Direction or Range or Both**. In slightly less obvious cases other aids should be used e.g. direction or range or both. An example of each is given below:-

(i) Indication by Direction :No 1 Section BAEN BAGHICHA.
(ii) Indication by Range :No 1 Section 600 BAGHICHA.
(iii) Direction and Range :When indicating a landmark, indicate direction first and then range e.g. BAEN-600, BAGHICHA.

15. **Difficult Targets** The targets which cannot be indicated by the methods given above are termed difficult targets. The methods to indicate these are explained by Direction Method as given below:-

(a) The general line of direction.
(b) A known reference point.
(c) Another landmark.

16. Unless otherwise stated all directions are taken to be with reference to the general line of direction. The following direction will be used:-

Direction	Measuring
Slight Left/Right	Approximately 10 degrees.
Quarter Left/Right	Approximately 22 ½ degrees.
Half Left/Right	Approximately 45 degrees.
Three Quarter Left/Right	Approximately 67 ½degrees.
Full Left/Right	Approximately 90 degrees.

CONCLUSION

17. To achieve success in war it is very important that the target is clearly understood and recognized by the troops. By using the methods of indicating the target the cadets can easily indicate and identify the target.

CHAPTER III: OBSERVATION, CAMOUFLAGE AND CONCEALMENT

Introduction

1. The term camouflage comes from French word “Camoufler” meaning “to blind or veil”. It means to disguise an object in plain sight in order to conceal it from something or someone. The object loses its three dimensional qualities and appears flat. Camouflage is defined as action of misleading enemy by concealing or misrepresenting the identity of own troops, equipment, installations and activities.

2. **Why Things are seen**. Various factors responsible for things to be seen are as follows:-

(a) Shape.
(b) Shine.
(c) Shadow.
(d) Surface.
(e) Spacing.
(f) Smoke.
(g) Sound.
(h) Movement.

3. You have seen as to why things are visible during day or in clear moonlit night. Now let us see why things are visible at night. There are two factors which are given below:-

(a) Sound.
(b) Light.

4. **Personal Camouflage**. Camouflage means to disguise an object in plain sight in order to conceal it from something or someone. Personal camouflage can be done by following methods:-

(a) Use of Disruptive Pattern.
(b) Clothing and Local Vegetation.
(c) Camouflage of Face.
(d) Camouflage of Equipment.

5. **Camouflaged of Equipments**:-

(a) Helmet. Use of Hessian Cloth & Use of Camouflage Net.

(b) **Camouflage of Back Packs**. Packs have square outline which is broken by tying thin ropes on the packs and branches of local vegetation are stuck in the ropes.

(c) **Camouflage of Rifle**. Metal parts of rifles are phosphate coated and hence shine is reduced. Garnish of suitable colour should be wrapped over wooden parts / plastic parts to contrast with surroundings.

(d) **Camouflage of LMG**. Wooden/plastic parts of the LMG should be covered by garnish. LMG trench is camouflaged by use of a net.

(e) **Camouflage of Equipment**. Equipment like binocular, map case, Radio Set should also be camouflaged by breaking its outline and preventing shine.

Concealment

6. If the enemy can see you, he can hit you with his fire. So you must be concealed from enemy observation and have cover from enemy fire. When the terrain does not provide natural cover and concealment, you must prepare your cover and use natural and man-made materials to camouflage/ conceal yourself, your equipment, and your position.

7. **TYPES OF COVER AND CORRECT USE**. There are of following types:-

(a) **Cover from View.** A person is concealed only from view and not from fire.

(b) **Cover from Fire.** This means that the concealed person is protected both from view and fire of weapon.

(c) **Look Through or Around Cover**. Whenever possible look through or around the cover but not over it.

(d) **Avoid Breaking a Straight Line.** Skyline/light coloured background is the worst background as the object against it will be found out because of contrasting background and shape.

(e) **Isolated Cover is Dangerous**. Eye catches isolated cover easily especially if there is any movement near it.

CONCLUSION

8. To conclude, the importance of camouflage and concealment can be realized from the following:-

(a) In earlier days it was said "If it can be seen, it can be hit, if it can be hit it can be killed".
(b) But now in the modern warfare "If it can be seen it will be killed".

9. Therefore, camouflage needs greater emphasis and the art of camouflage and concealment reduces the different varieties of soldiers into two main categories viz, "The good and the dead." Concealment is an aid to tactical deception and misinforms the enemy about our intentions and strengths.

CHAPTER IV : FIRE AND MOVE CAPSULE

1. The primary aim of infantry is to close in with the enemy & destroy him. The aim of getting close is achieved by making skilful use of ground. A clever enemy will however, deny you the use of such ground which you may need. When such a cover is denied by the enemy, we may have to movement in open. Once we are forced to movement in open, a part of our force will have to fire on en position & force him to keep his head down. This would render the en incapable of bringing down aimed fire at us while we are on the movement. This process of keeping one element on the ground to give covering fire, while the other element is on movement, is called fire & movement. This is the basic tactics of all infantry and mechanised ops. To understand the fire and move as capsule cadets has to understand basics nuances.

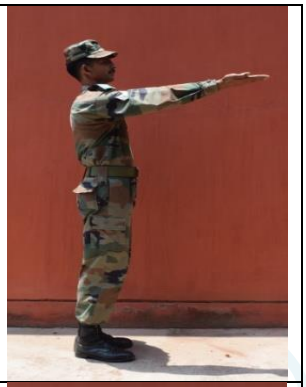
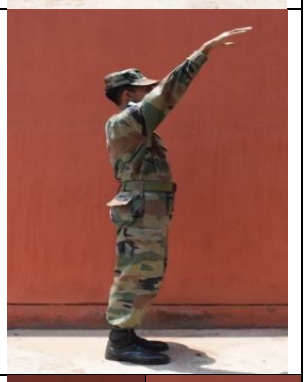
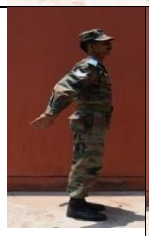
Field Signals

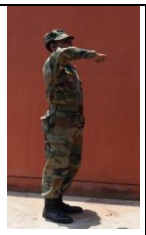
2. Whenever someone wants to convey his message one has to raise his voice. In olden days smoke, sound of drum was the mode to convey messages from one village to another. In Army, different methods are used to convey messages. Today, you will learn one of these methods called Field Signals.

SIGNALS WITH HAND AND WEAPONS

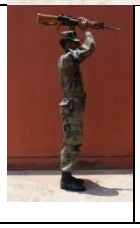
3. **Signals with Hands**.

Ser No	Name Of Signal	Signals With Hand	Illustrations
(a)	Deploy	Right arm fully extended above head and waved from side to side, palm open.	 
(b)	Advance	Right arm swung from rear to front in “under arm blowing” fashion.	 
(c)	Halt	Right arm raised to full extent above head.	
(d)	Turn About	Right arm raised and bent above head.	

(e)	Change Direction	Right arm raised to front in line with shoulder. Body then turned in required direction.	
(f)	Close	Right hand place on top of head, elbow to the right.	
(g)	Follow me	Right arm swung from rear to front above the shoulder in “over arm bowling” fashion.	
(h)	Enemy Approaching	Both hands open, palm inwards at waist level, with inwards scooping motion.	 
(i)	Enemy LMG firing	Right hand thumb down signal.	

(j)	Attack	Punching motion with Right or Left hand according to direction of attack.	 
(k)	Closed to Rendezvous	Close sign followed by both hands clasped in front of body at waist level.	 
(l)	Infantry obstacle ahead	Both hands crossed in front of body at the waist, palm open downwards.	

4. **<u>Signals with Weapons</u>**.

Ser No	Name Of Signal	Signals with Weapons	Illustrations
(a)	Enemy in Sight	Rifle held above the head parallel to the small number muzzle in the direction of the enemy.	
(b)	Enemy in Sight in large number	As per (a) above, but arm moved up and several times.	 

(c)	Advance	Both arms raised to form the letter U	

5. **Signals with Whistle**.

Ser No	Name Of Signal	Signals With Hand
(a)	Cautionary Blast	A short blast to draw attention to a signal or order about to be given.
(b)	The Alarm Blast	A succession of alternate long and short whistle blasts.
(c)	Enemy Aircraft	A succession of short blasts.
(d)	Enemy Aircraft departed	Two long blasts repeated at interval of five seconds.

Field Signals As Means Of Giving Orders

6. Field signals are alternate means of giving orders and to control troops when voice control is not possible. Control over troops deployed can be done better by field signals than by voice control. There are various occasions when voice control is not possible. They are:-

(a) **Battle Noises**. In war, due to firing and vehicle movement very high noise will be produced, so it may not be possible for a Commander to give voice message.

(b) **Need for Silence**. There are certain operations which, by design are carried out in utmost silence, eg:-

(i) Ambush.
(ii) Patrolling.
(iii) Raid.
(iv) Cordon.

(c) **Intervening Distances are Too Large**. When Infantry takes the battle field they come across many obstacles in ground such as the ditch, rivers, and mountains. Under such circumstances we will have the only choice left with us is field signals for communication.

7. **Methods to Attract Attention Of Troops**. Before any field signal is executed, the commander has to attract the attention of troops. Methods to attract attention of troops are :-

(a) A Short Blast of Whistle.
(b) A Bird Call.
(c) Whistle by Mouth.
(d) Clicks(By using tongue).
(e) Clicks by Fingers.

8. **Other Methods of Communication**. Besides field signals there are various other means of communication in the Army which are as follows:-

(a) Dispatch Runners.
(b) Dispatch Rider.
(c) Radio Sets.

9. **Field Signals By Day**. Some of the visual signals used during the day are flags and mercury coated mirrors. Flags are very effectively used by Navy on board a ship by following ways:-

(a) Flags: (Red, Green and White flags).
(b) Mercury coated mirrors.
(c) Smoke.
(d) Miscellaneous: Various signals can be improvised and pre-arranged as under:-

(i) Clothes superficially hung out to dry.
(ii) Hurricane lamp, kept in the window.
(iii) Flashing of torch is used as Morse Code.
(iv) Applying various colours / signs on forehead and arms.

10. **Field Signals By Night**. Some of the field signals that can be used at night are:-

(a) Pre decided signals on a walkie talkie.
(b) Click by fingers.
(c) Clicks by using tongue.
(d) Whistle by the mouth.
(e) Use of rope.
(f) Use of colour light.
(g) Use of blacked out torch.
(h) Firing of weapon.

11. The fighting efficiency of a unit/sub unit depends on sound communication system which helps commanders at all levels to exercise command and control effectively. Every commander must influence the battle by his personal touch which is achieved by good signal communications. Field signals become a part of movement of a good section/platoon commander. At section/platoon level, the commander directly influences the battle by the use of field signals. Victory in battle will come to that section/platoon whose men are familiar in the use of field signals.

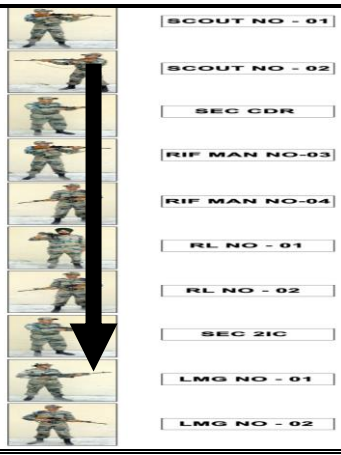
SECTION FORMATION

12. **Introduction**. Various formations are used when troops come in contact with the enemy and the type of formation adopted is entirely dependent on the following four basic factors:-

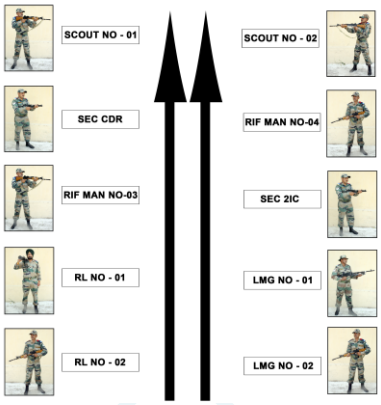
(a) Degree of control required to be exercised by the Section Commander.
(b) Type of ground.
(c) Necessity of bringing down maximum fire with minimum delay.
(d) Task.

13. A Section is the smallest sub unit of an Infantry Battalion and is capable of undertaking independent task. It consists of ten persons who are organized in Rifle group and Support Group. Different types of formations adopted by a section are as under:

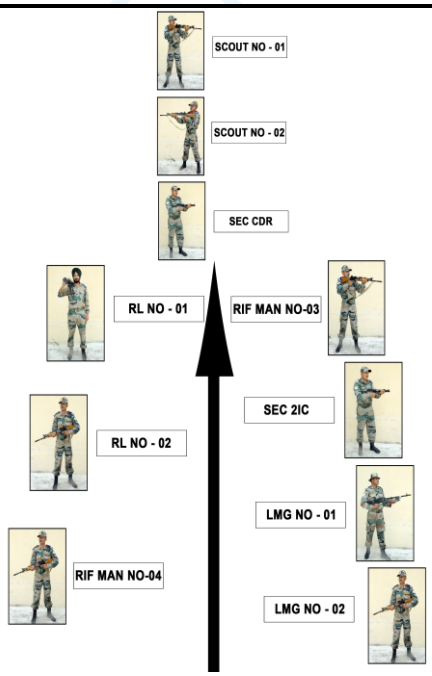
Single File Formation



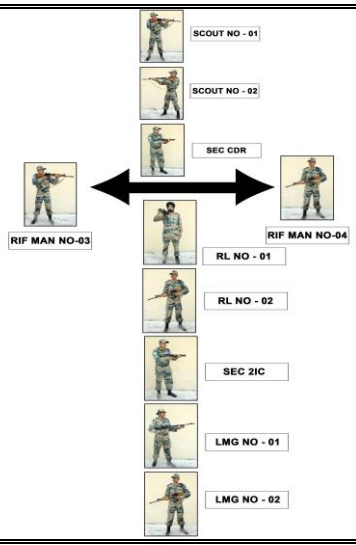
File Formation



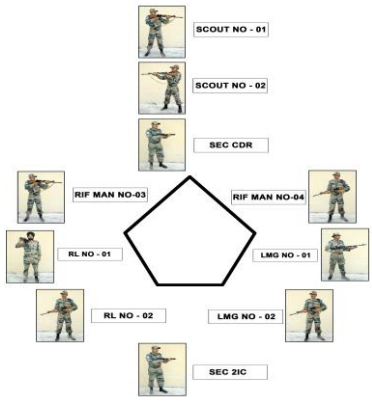
Arrow Head Formation



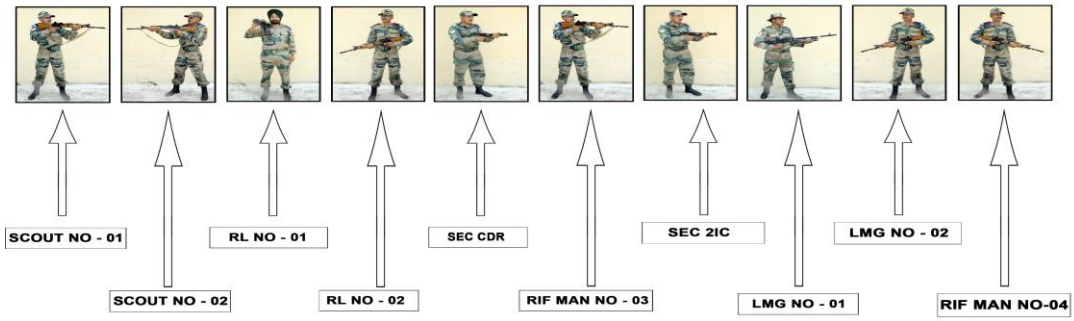
Spear Head Formation



Diamond Formation



Extended Line Formation



Scout

14. Now you have seen section formation, a word about the scouts. Scouts are the eyes and ears of the section. Scouts always work in pairs. They work ahead of the leading section and advance from bound to bound. As scouts, one must always be alert.

15. You have so far learnt the organisation of a section and the various formations adopted by a section in battle. Remember, a section is organised into the Rifle Group and Fire Support Group to facilitate fire and move, the basic of all tactics. As for the section formations, each formation has its peculiar advantages and disadvantages. Remember, need for command and control and the necessity of developing the maximum fire quickly, will determine the formation you as a section commander must adopt.

FIRE CONTROL ORDERS

16. By opening of fire indiscriminately, too early or at too great a range, the defender's position will be disclosed prematurely which will mean wasting of ammunition without advantage. This means Section Commander should be able to control the fire of his section by exercising good fire discipline.

17. It is the duty of the commander to ensure that the enemy is engaged effectively by bringing down the correct volume of fire at the most effective range by using the most appropriate weapon(s). Also in the battle, all personnel of a section / platoon may not be able to observe the enemy and even if they can, they may either not open fire thinking that others would do so or all of them may open fire resulting in wastage of ammunition.

18. It is also the duty of a commander to assess the effect of fire on the en and then either stop the fire, or re-adjust it or add the fire of additional weapons to make it effective. Therefore, the commander ensures effective fire and judicious expenditure of ammunition.

Importance Of Fire Discipline And Fire Control Orders

19. Fire discipline is a battle winning factor which will stand you in good stead, especially in situations where surprise is of paramount importance. Indisciplined firing starts with an individual and spreads like wild fire. Should the troops have confidence of correct, accurate and effective fire orders, they may not indulge in opening of premature/indiscriminate firing, thereby giving away position or wasting ammunition. Fire discipline and fire control orders are very important in all operations of war.

20. **Defence**. In defence, if fire is opened up prematurely, it will give away the defender's location allowing the enemy to change his plan and surprise the defender subsequently. Moreover, fire opened up at long ranges, is rarely effective and results in leaving the defender with less ammunition for the eventual attack by the enemy. Therefore good fire discipline and correct fire orders, assumes added significance in the following cases:-

(a) During hours of poor visibility/darkness when men are jittery and tend to fire at imaginary targets.

(b) When enemy patrols try to draw fire from the defender in order to find his disposition.

21. **Important Terms**. Certain terms connected with fire control orders are:-

(a) **Fire Unit.** Any number of men firing under a commander, usually a section. The personal responsibility for giving them the executive order to fire is the fire unit commander.

(b) **Fire Direction Orders**. These are the orders which the fire unit commander receives from his superior, telling him when, at what target, and with what intensity to open fire. A section commander will receive fire direction orders from his Platoon commander. They may include key ranges and any specific direction about withholding of fire.

(c) **Fire Control Orders**. These are the orders given by the fire unit commander to direct and cont the fire of his fire unit.Emphasis should be on control and surprise. These orders are the final and complete instructions after all factors have beenconsidered and before fire is actually opened.

(d) **Arc of Fire.** This denotes the area of ground for which the fire unit is responsible and within which it will engage targets. An arc of fire must not be confused with a field of fire, which is the area over which it can fire effectively.

22. **Points for Section Commander**. There are certain factors which must be remembered before giving fire control orders.

(a) **Indication.** No fire order can be effective unless the target is clearly indicated and can be easily recognised by the men of the fire unit.

(b) **Range.** Do the range, visibility and vulnerability of the target justify fire at all? Would it be better to wait and get a more vulnerable target or achieve more/complete surprise?

(c) **Best Weapons to Use.** What is the best weapon or weapons to use? Although the LMG is the main weapon of the section, the target may be more suitable for rifle fire only or possibly for a combination of weapons, eg a LMG and rifle grenade.

(d) **Rate of Fire**. Should the fire be in single round or in bursts? Should it be rapid or at the normal rate? Rapid rate is justified only on a few occasions, when it allows the max effect to be gained from surprise and volume of fire or when an especially vulnerable target presents itself or to cover move of troops in the final stages of an assault.

23. **Method of Giving the Orders**. Having decided to open fire, there is then the need to give orders. The four main rules which must be adhered to are: -

(a) The orders should be given clearly, calmly and concisely.
(b) It should be given loudly so as to be heard above the noises of the battle.
(c) It must be given as an order, to be obeyed as such.
(d) It should be given with adequate pauses, so that those being addressed may have the time to take the correct action. For example there must be time for sight adjustment after the range is given.

Sequence of Fire Control Orders

24. Fire control orders must be given in the laid down sequence so as to avoid confusion and misunderstanding. For ease of remembering the sequence for giving fire control orders, remember the catch word `GRIT'.

(a) **G** The Group of the section which is addressed, i.e the LMG group, the rifle group or the whole section. An order starting 'No 1 Section indicates that the whole section will fire, `LMG Group' or 'Rifle Group' means that group only is to fire.

(b) **R** The range to the target should be given next. It is to ensure accuracy of fire and to draw attention on a limited area of ground (Instructor to explain why range has to be given before indicating the target).

(c) **I** The indication of the target by the simplest form of indication.

(d) **T** The type of fire to be emp. i.e open fire at once, or on further orders, or when the opportunity arises.

Types of Fire Control Orders

25. There are four types of fire control orders as under :-

(a) **Delayed Fire Control Orders**. These orders are given as an early warning when enemy is seen approaching at a longer range so that necessary preparations are made by the troops to open fire, as soon as the enemy appears within the effective range of weapons. Delayed fire control orders are executed in two manners:-

(i) When the initiative to open fire is left to the man eg:-

"No 1 Sec - 800 - JUNGLE se dushman ka ek sec adv kar raha hai. Jab mar ke ilake men aye to FIRE".

(ii) When initiative to open fire is with fire unit commander. Eg

“No 1 Sec - 800 - JUNGLE se dushman ka ek sec adv kar raha hai– mere agale hukam ka intizar karo".

(b) **Full Fire Control Orders.** As the name suggests these are orders complete in all respects. These fire control orders are given when fire is to be brought down immediately on a target within the effective range of weapons. There are two types of full fire control orders.

(i) **Distributed Area Target**. This is when the enemy presents itself over an area. e.g.

“No 1 Sec - 200 - JHARI - DAINE tin baje DARKHT –tak dushman ki position. LMG Group char burst, rifle group tin tin round FIRE”.

(ii) **Pin Point Target.** This is when enemy presents itself atone.
place only. e.g.

"Rif Gp 300 AkelaDarkhat, Darkhat ke niche dushman ka sniper, Rfn No 1 - tin round „FIRE".

(c) **Opportunity Fire Control Orders.** These orders are given when the target is not continuously seen by everyone in the section or when the enemy has taken cover, eg:-

"No 1 Sec 400 tuti futi zamin me dusman chhupa hua hai, nazar ane per FIRE".

(d) **Brief Fire Control Orders**. These are given when time is not available to give out a full fire order. In this only essential details are given. This type of order is normally given when enemy appears at close range and surprises us. eg
"LMG group sights down enemy running left to right - FIRE (Instructor to explain significance of the phrase sights down".

26. **Fire Control Orders are necessary to achieve the following**:-

(a) Maintain fire discipline.
(b) Conserve and expend ammunition and use it judiciously and effectively.
(c) Not to disclose own position prematurely at long ranges, as chances of enemy escaping are more and they would have taken away information of your dispositions, which is not desirable.
(d) Engage targets with speed.
(e) Maintain surprise.

FIRE AND MOVEMENT

27. **When to use Fire and Movement Tactics**. Fire & movement tactics may be used in following circumstances: -

(a) The enemy has opened SA fire which is effective.

(b) When own troops have seen the en first - within 400 to 700 meters.

(c) When the en is known or suspected to be in a certain area, then fire & movement tactics may be adopted when the troops reach within the effective range of en weapons/observation. (Instructor to explain as to what could be the effective range of enemy's personal weapon)

(d) To cross obstacles by day or by night, e.g. nullahs /rivers.

28. **Basic Considerations**. There are five basic considerations for fire & movement. These are as under:-

(a) **No movement on exposed ground without covering fire**. The Advantages of covering fire are obvious, but this does not mean that fire will be brought down continuously when you are moving. Whenever you have ground providing you cover, you must use it. Whenever you have to move in open, fire must be brought down on the en in small bursts to keep his head down.

(b) **Control by the Commander**. The sec can remain a viable force only when it is under the control of its commander. Otherwise, it is likely that the required fire support will not be brought down at the required place & time. In a section, control is ex by voice command & hand signals. As a rule, sec commander must keep his section within range of voice or visible control.

(c) The angle of covering fire from direct firing weapons should be as wide as possible w/o loss of control or time. It is to ensure that own troops are not coming under effective fire of own fire sp. It also ensures that the fire support is provided till as late as possible so that assault troops are able to close in with the en.

(d) **Full use of Available Cover.** Full use should be made of cover provided by the ground. Various types of cover have already been taught to the cadets.

(e) **Optimum use of all Available Weapons.** All available weapons should be used for producing covering fire.

29. **Appreciation of Ground and Cover**. In battle, fire & movement is applied according to the type of ground over which we are operating. In open country, the problem is to find cover; in close country, there is

difficulty in finding positions with good observation & field of fire. Skillful use of ground can help achieve surprise & save lives. It is therefore required to develop an eye for ground. Ground should be considered from the enemies' point of view & it should be appreciated for the following:-

(a) Fire positions.
(b) Observation positions.
(c) Cover from fire.
(d) Cover from view.
(e) Obstacles.

(Instructor to explain that while movement, sec commander & every member of the sec is responsible to continuously look for nearest cover which he may have to take once en opens effective fire. He is also responsible to appreciate various fire positions & types of cover being provided by that particular cover).

30. **Types of Cover**. Cover from view is often not cover from fire, especially if the movement has been seen by the enemy. Concealment from enemy air and ground observation is the chief means of gaining surprise. Some of the main types of cover are:-

(a) Undulating ground which is the least obvious form of cover; when skillfully used, it protects from direct fire and gives no ranging marks to the enemy.

(b) Sunken roads, beds of streams and ditches which give good cover from view and often from fire as well. However, the reis always a danger that the enemy may pay special attention to them; they may be mined or booby-trapped and precautions must be taken. If the roads or ditches are straight, the enemy will be able to fire down the min enfilade.

(c) Hedges and bushes give cover from view but not from fire. In open country they may make Standing crops give cover from view but movement through them can generally be detected.

(d) Woods which give cover to men and vehicles from enemy air and ground observation. They give some protection from small arm fire but HE bombs and shells will explode in the branches of trees and will cause heavy casualties unless troops are dug in and have overhead protection.

(e) Buildings and walls afford concealment and protection from small arms. Fire and shell splinters. When isolated they make good ranging marks for the enemy.

31. **Dead Ground**. Ground which a soldier cannot see from his position is called dead ground. Platoon and section commanders should be able to recognize ground which is likely to be dead to the enemy. Ground can only be described as dead in relation to the position of an observer. Troops under cover or in dead ground are safe from enemy observed fire but not from indirect fire. These areas are always likely to be selected by the enemy as defensive fire tasks for his artillery and mortars. Dead ground is also safe from detection by battle field surveillance radars, by battle field surveillance radars, as these have line of sight limitations.

32. **Common Mistakes**. The wrong use of ground may lead to casualties and loss of surprise; some common mistakes are:-

(a) Carelessness by troops while making a reconnaissance, such as unfolding a map in the open or not using a covered approach to an Observation Post.

(b) Unnecessary movement in a position overlooked by the enemy.

(c) Using conspicuous landmarks such as isolated trees, bushes or cottages.

(d) Halting troops near road or track junctions or other mapped features which are always registered as targets by the enemy.
(e) Bad track discipline.
(f) Failure to guard against enemy air observation.

33. **Maps and Air Photographs**. Maps and air photographs should be used together to obtain the best picture of the ground. The two aids are complementary as is shown by listing the advantages and limitation of air photographs :-

(a) **Advantage**.

(i) Are more up-to-date.
(ii) Gives more detail.
(iii) Show the size and shape of features accurately.
(iv) Allow gradient to be seen in relief with a stereoscope.

(b) **Limitations.**

(i) Complete geographical cover almost impossible.
(ii) Expensive to produce.
(iii) Scales vary.
(iv) Details of heights not given.

34. **Selection of Fire Positions and Fire Control**. The ideal fire position should:-

(a) Provide cover from fire.
(b) Provide cover from view.
(c) Afford a good view of the ground to be watched or target to be engaged.
(d) Provide room in which to use the weapon freely.
(e) Have a covered approach.
(f) Be easy to advance from.

Fire Control

35. There is a big distinction between fire control in attack and in defence. In **attack** men should be allowed a great deal of latitude in opening fire. Speed and immediate fire effect is what is required. With a well concealed enemy it will often be necessary to "neutralise" an area by fire since few definite targets will be visible. In **defence**, the vital factor in fire control is that early opening of fire may give away positions to the enemy and jeopardize concealment. Normally, a section commander will lay down a line in front of his section post beyond which fire will not be opened without his orders. This is particularly important where a long field of fire is available. In any case fire will normally be opened on the orders of the section commander.

Movement

36. Movement in the face of the enemy should be covered by fire. This does not mean that it is impossible to move unless a heavy weight of fire is brought down on the enemy. An important part of an attack is the movement towards the objective, supporting fire is one of the aids to that movement. A knowledge of how to move and how to use ground for movement is essential to enable troops to close with the enemy with minimum casualties, undetected in the zone of arc of battle field surveillance radars.

37. Usually, troops advancing by day in action will move at a brisk walking pace until they make contact; in the final stages of the assault, they will double. They may have to double or crawl at other times; for example if attacking troops move into enemy defensive fire, it is usually best to double forward and through it; to lie down is often dangerous as well as useless. Doubling and crawling are both tiring however, and should only be used in short spells in critical situations particularly for crossing open ground in full view of the enemy. The commander must himself decide on his pace from his personal knowledge of the state of fitness of his men. In general the aim must always be to keep movement determinedly towards the enemy at the best possible speed.

CONCLUSION

38. Fire & Move is the basic skill of tactics. Its training provided to all the officers and jawans. The basic aim is to enable one detachment of soldiers to move while the enemy is pinned down by the effective fire of the other temporarily static body of soldiers. It is the most effective and safest method to move during operations or when in contact with the enemy.

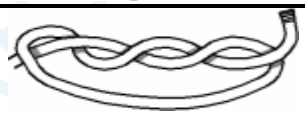
CHAPTER V : KNOTS, LASHINGS AND STRETCHERS

1. The ability to join two pieces of natural material together, and so increase their length, gives man the ability to make full use of many natural materials found locally. Knot tying is a useful exercise to obtain better coordination between eyes and fingers.

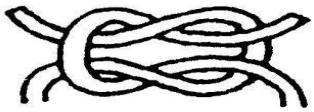
Knots

2. A brief description of the use to which the knot may be put is given in this lesson. The diagrams will explain how the knot is tied. The letter "F" means the free or untied end of the rope, and the letter "S" means the standing or secured end.

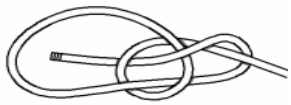
3. **Knots for Rope ends or for Grips on Thin Rope**.

Ser No	Type of Knot	Sample
(a)	**Thumb Knot.** To make a stop on a rope end, to prevent the end from fraying or to stop the rope slipping through a sheave, etc.	
(b)	**Overhand Knot.** Over hand knot may be put to the same use as the thumb knot. It makes a better grip knot, and is easy to undo.	
(c)	**Figure Eight.** This knot is used as the thumb knot. It is easy to undo, and more ornamental.	

4. **Knots for Joining Ropes**.

Ser No	Type of Knot	Sample
(a)	**Reef Knot**. To securely join two ropes of equal thickness together. Notice the difference in position of the free and standing ends between this and the thief knot.	
(b)	**Thief Knot** To tie two ropes of equal thickness together so that they will appear to be tied with a reef knot, and will be retied with a true reef knot. This knot was often used by sailors to tie their sea chests, hence the name.	
(c)	**Fisherman's Knot**. For joining two springy materials together; suitable for wire, fishing gut or vines. Two thumb knots (one on each rope)pulled tight. The knots lock together.	

5. **Knots to Make Loops in Rope**.

Ser No	Type of Knot	Sample
(a)	**Bowline**. To form a loop that will not slip on a rope end.	

6. **Knots for Fastening Ropes**.

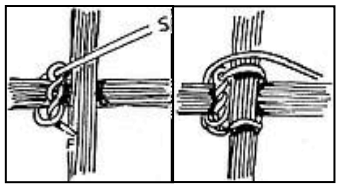
Ser No.	Type of Knot	Sample
(a)	**Clove Hitch**. For securing a rope to as par. This hitch, if pulled taut, will not slip up or down on a smooth surface. A useful start for lashings.	

Lashings

7. The methods employed to tie with ropes, poles or any rope to a stationary object to securely hold it in place is known as lashing.

(a) **Square Lashing**. To join poles at right angles.

(b) **Frapping Turns**. These are turns that go round the lashing and pull it tight.



8. **Stretchers**. A stretcher, litter, or pram is an apparatus used for moving patients who require medical care. A basic type (cot or litter) must be carried by two or more people. A wheeled stretcher (known as a gurney, trolley, bed or cart) is often equipped with variable height frames, wheels, tracks, or skids.

9. **Basic stretchers**.

(a) Simple stretchers are the most rudimentary type. They are lightweight and portable, made of canvas or other synthetic material suspended between two poles or tubular aluminum frame. Many are stored as disaster supplies and are often former military equipment.

(b) The scoop stretcher is used for lifting patients, for instance from the ground onto an ambulance stretcher or onto a spinal board. The two ends of the stretcher can be detached from each other, splitting the stretcher into two longitudinal halves. To load a patient, one or both ends of the stretcher are detached, the halves placed under the patient from either side and fastened back together.

(c) The litter, also known as a rescue basket or Stokes basket, is designed to be used where there are obstacles to movement or other hazards: for example, in confined spaces, on slopes, in wooded terrain. Typically, it is shaped to accommodate an adult in a face up position and it is used in search and rescue operations. The person is strapped into the basket, making safe evacuation possible. The litter has raised sides and often includes a removable head/torso cover

for patient protection. After the person is secured in the litter, the litter may be wheeled, carried by hand, mounted on an ATV, towed behind skis, snowmobile, or horse, lifted or lowered on high angle ropes, or hoisted by helicopter.

(d) A Reeves Sleeve, SKED, or "flexible stretcher" is a flexible stretcher that is often supported longitudinally by wooden or plastic planks. It is a kind of tarpaulin with handles. It is primarily used to move a patient through confined spaces, e.g., a narrow hallway, or to lift obese patients. Reeves stretchers have six handholds, allowing multiple rescuers to assist extrication.

(e) The WauK board is also designed for use in small spaces. The patient is secured to the board with straps. It has two wheels and a foldable footrest at one end, allowing the patient to be moved by one person, much as with a hand truck for moving cargo. It can also be used at a variety of angles, making it easier to traverse obstacles, such as tight stairwells.

10. **Wheeled stretchers**. For ambulances, a collapsible wheeled stretcher, or gurney, is a type of stretcher on a variable-height wheeled frame. Normally, an integral lug on the stretcher locks into a sprung latch within the ambulance in order to prevent movement during transport, often referred to as antlers due to their shape. It is usually covered with a disposable sheet and cleaned after each patient in order to prevent the spread of infection. Its key value is to facilitate moving the patient and sheet onto a fixed bed or table on arrival at the emergency department. Both types may have straps to secure the patient.

11. **Other types of stretchers**. The Nimier stretcher (*brancard Nimier*) was a type of stretcher used by the French army during World War I. The casualty was placed on their back, but in a "seated position", (that is, the thighs were perpendicular to the abdomen). Thus, the stretcher was shorter and could turn in the trenches. This type of stretcher is rarely seen today.

CONCLUSION

12. Knots, lashings and stretchers are very useful and become very handy for cadets during camps. They can make use of knots for joining or tying 2 to 3 different ropes together and make use of it during rope climbing, rappelling, slithering and other such adventure activities. Similarly, lashings can be used for joining 2 or 3 things together to make a structure that can useful in camps. For evacuation of any injured or causality stretchers are important to be known and used.

.SUMMARY

1. Field Craft is an aspect of military training which relates to the conduct of a soldier in face of the enemy. It's an art of using the ground and the weapon available to the best of one's own advantages.

2. **Methods of Judging Distance**.

(a) Unit of Measure.
(b) Appearance Method.
(c) Section Average.
(d) Key Range.
(e) Halving.
(f) Bracketing.

3. **Types of Ground**.

(a) Broken Ground.
(b) Flat and Open Ground.
(c) High Ground.
(d) Dead Ground.

4. **Landmarks**. .An object, which is prominent on the ground and which is used in verbal orders to explain the ground in front.

5. **Target**. It is an object having a tactical significance which is indicated with a view to bring down fire on it.

6. **Reference Point**. .A prominent and unmistakable object, with the help ofwhich you can indicate other land marks or targets. A reference point should be specific. Things are seen due to

(a) Shape.
(b) Shine.
(c) Shadow.
(d) Spacing.
(e) Smoke.
(f) Sound.
(g) Movement.

7. **Camouflage**. The various measures include.

(h) Use of Disruptive Pattern Clothing and Local Vegetation.
(i) Camouflage of Face.
(j) Camouflage of Equipment.
(k) Helmet.
(l) Use of Hessian Cloth.
(m) Use of Camouflage Net.
(n) Camouflage of Packs.
(o) Camouflage of LMG.
(p) Camouflage of Rifle.

8. There are two types of cover:-

(a) **Cover from Fire**. This implies that the concealed person is protected both from view and fire of weapon.
(b) **Cover from View**. In this type of cover, a person is concealed only from view or from being seen not from fire.

9. Field Signals is one of the ways of passing of message with the help of Predetermined codes and signals.

(a) Signals with hand.
(b) Signals with Weapons.
(c) Signals with Whistle.

10. Field signals are alternate means of giving orders and control troops when voice control is not possible like:-

(a) Battle Noises.
(b) Need for silence.
(c) Intervening distances are too large.

11. The Field signals used during day are different form ones used at Night. These could be:-

(a) Other Methods of Communication.
(b) Radio.
(c) Dispatch Rider.
(d) Runners.

12. **Basic Considerations for Fire and Movement**.
(a) No movement on exposed ground without covering fire.
(b) Control by the commander.
(c) The angle of covering fire from direct firing weapons should be as wide as possible w/o loss of control or time.
(d) Full use of available cover.
(e) Optimum use of all available weapons.

13. The ideal fire position should: -
(a) Provide cover from fire.
(b) Provide cover from view.
(c) Afford a good view of the ground to be watched or target to be engaged.
(d) Provide room in which to use the weapon freely.
(e) Have a covered approach.
(f) Be easy to advance from.

14. The various section formations are :-
(a) Single file.
(b) File.
(c) Arrow Head.
(d) Diamond.
(e) Spear Head.
(f) Extended Line

15. Knots are ability to join two pieces of material/rope together. Important types of knots are:-
(a) Thumb Knot.
(b) Overhand Knot.
(c) Figure Eight Knot.
(d) Thief Knot.

16. **Lashing**. The method employed to tie with ropes, poles, or any rope to a stationary object to securely hold it in place is known as Square Lashing and Frapping Turns.

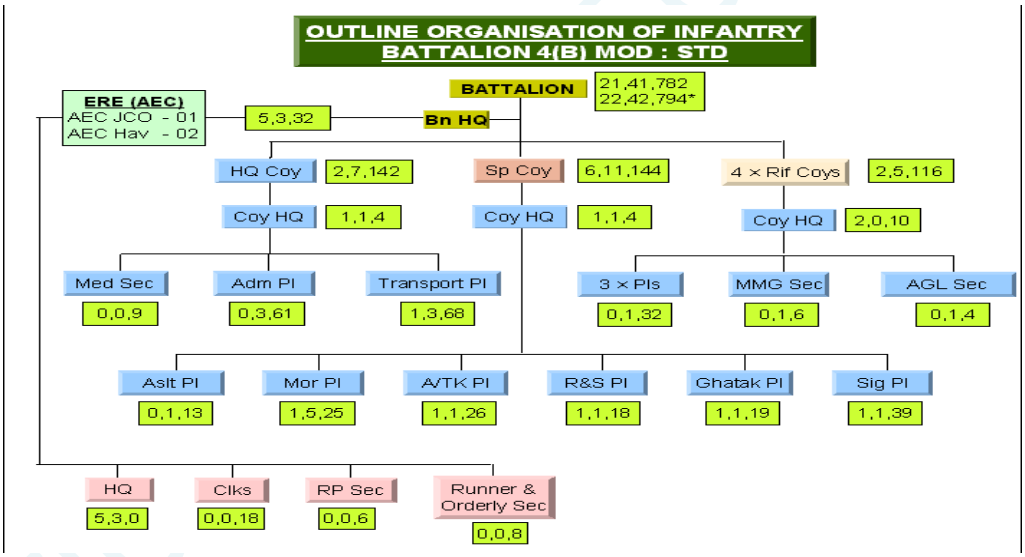
17. **Stretchers**. For evacuation of any injured or causality stretchers are important to be known and used.

ORGANISATION OF AN INFANTRY BATTALION AND ITS WEAPONS

1. **Introduction**. The infantry battalion is the most important organisation of the army. It is trained and equipped to face any adverse situation. It can fight an enemy independently or as part of a larger force. It has the sustenance power and motivation to fight till the end. The Infantry Battalion is a balanced force which can withstand any difficult situation both in offensive, defensive, as well as in special operations against the enemy. The support weapons available with the Battalion can contain the plan of the enemy by causing maximum damage both in fortified fire positions and Armoured protected tanks/personal carriers.. Infantry battalion has inherent fire power capability at long ranges in terms of battalion support weapons. The two important infantry battalion support weapons are 81mm Mortor and Anti Tank guided missile.

ORGANISATIONOF INFANTRY BATTALION

2. The infantry battalion is the most important organisation of the army. It is trained and equipped to face any adverse situation. It can fight an enemy independently or as part of a larger force. It has the sustenance power and motivation to fight till the end.



Capabilities

3. The capabilities of Infantry Battalion are as under:-

(a) **Self Reliance**. The Infantry is equipped, trained and organized to fight with the enemy without any outside support. It can fight itself for a long time.

(b) **Ability to Hold Ground**. The Infantry Battalion can hold ground effectively with or without outside support.

(c) **Adaptability**. An infantry battalion is highly adaptable and can operate over any type of ground, by day or by night and under any difficult climatic conditions. The infantry battalion can be readily shifted by land, sea or air to the battle field.

(d) **Mobility**. Infantry battalion has a high degree of mobility. It can go through almost all kinds of obstacles.

(e) **Vulnerability**. In battle, an infantry battalion becomes vulnerable in front of tanks, artillery, small arms, air attack and anti-personnel mines.

Employability

4. The basic role of infantry battalion is to close in with and destroy or capture the enemy and to hold ground. Fire and movement is the basis of infantry tactics. Infantry battalion from section up wards is based on this principle. Infantry battalion and its sub-units are trained to operate in the face of the enemy opposition without entirely depending on support from other arms, by skillful use of ground, weapons, and above all the infantrymen with their sheer courage, determination and velour.

Company Support Weapons

5. The company support weapons are 7.62mm Dragunov Sniper Rifle, 7.62mm Medium Machine Gun, 30 mm Medium Grenade Launcher, and Anti material Rifles. They are used both in defensive and offensive operations.

6. **7.62 mm Dragunov Sniper Rifle**.

(a) Caliber - 7.62mm.
(b) Range - 800 Mtr.
(c) Range with telescope sight - 1300 Mtr.
(d) Weight - 4.3 Kg.
(e) Magazine capacity - 10 Rounds.
(f) **Ammunition fired**.
  (i) Armor Piercing.
  (ii) Sniper Balls.
  (iii) Steel Core.
  (iv) Tracer.
  (v) Incendiary.

7. **7.62 mm Medium Machine Gun**.

(a) **Weight**.

  (i) Gun - 14.2 Kg.
  (ii) Tripod - 10.2Kg.

(b) Effective Battle Range - 1800m.
(c) Traverse - 360 degree.
(d) No. of rounds in belt -235 Rounds.

(e) **Rate of Fire**.

  (i) Normal - 100 rounds per min.
  (ii) Rapid - 200 rounds per min.
  (iii) Cyclic - 500-1000 rounds per min. (Adjustable by setting of gas regulator).

(f) Length of Service Burst - 20 rounds.
(g) Sustained Fire - Being air-cooled can maintain normal rate of fire indefinitely However barrel should be changed after firing four belts.

(h) **Beaten Zone**.

Range	**Beaten Zone**
(i) 560m	110m x 1m.
(ii) 600m	100m x 1m.

	(iii)	1200m	65m x 3m.
	(iv)	1800m	50m x 4m.
(i)	Trajectory		-When the sight is fixed up to 600m bullets do not rise above 1.2m (4 ft).
(j)	Night Firing		-It is possible to fire the gun at night using passive night sight.

8. **30mm Automatic Grenade Launcher**.

(a) **Weight**

(i)	Launcher	-	18 kg.
(ii)	Mount	-	12 kg.
(iii)	Sight	-	1 kg (without case); 3.5 kg (with case).
(iv)	Gun Box	-	14.5 kg (with 29 grenades in one belt).
(v)	Sight with case	-	3.5 kg.

(b) **Range** -800 to1700 m (With and without sight).

(c) **Rate of Fire**

(i)	Normal	-	50grenades/Min.
(ii)	Rapid		100grenades/Min.
(iii)	Cyclic		350 to 400grenades/Min.

(d) **Flexibility**. It can be mounted on a vehicle or helicopter. It can fire in low angle as well as in high angle. It has crest clearance capability. Flexibility is mainly due to:-

(i)	Controlled Elevation	-	67 degrees.
(ii)	Controlled Depression	-	14 degrees.
(iii)	Free Traverse	-	260 degrees.

(e) **Effect of Fire**. It fires a fragmentation type of grenade which can be fired in a single shot or burst mode. The killing area of a grenade is 7 m all around from the point of burst.

(f) **Limitations**. It has the following limitations:-

(i) Due to sustained fire small parts get damaged.
(ii) Barrel needs to be cooled after firing 80 to 90 grenades.
(iii) It gives out flash and blast on firing.

9. **84 mm Rocket Launcher**.

(a) Caliber– 84 mm.
(b) Weight– 16 kg with mount and telescopic sight.
(c) Length – 1065 mm.
(d) Traverse– No traverse of its own.
(e) **Range**.

(i)	HEAT	-	400m (moving targets) and 500 m (stationery targets).
(ii)	HE	-	1000m (killing area 10 m).
(iii)	Smoke	-	1300 m (width 15 m).
(iv)	Illumination	–	2100 m (area of 400- 500 m diameter for 30 seconds).

(f)	Rate of fire	Maximum sustained 06 rounds per minute.
(g)	Types of ammunition	Heat, HE, Smoke, Illumination.
(h)	Armor Penetration	400 mm (Heat).
(i)	Back Blast Area	15 m.

BATTALION SUPPORT WEAPONS

81MM Mortars

10. **Characteristics of 81mm Mortars**.

(a) Caliber - 81 mm.
(b) Weight - 40.6 kg (without sight).
4.7 kg (sight without case).
(c) Range

(i) Minimum – 68mts (from safety point of view 90 m).
(ii) Maximum – 5200 m.

(d) Rate of Fire (per minute).

(i) Slow – 6-8 rounds.
(ii) Normal – 9-11 rounds.
(iii) Rapid – 12- 20 rounds.

(e) Muzzle Velocity – 305 m/sec (maximum).
(f) Elevation Limit –45 degrees to 85 degrees (g).
(g) Safety Distance – Flanking 200 m, Overhead 250 m.

11. **Anti Tank Guided Missile (ATGM)**

(a) Minimum Range - 75m.
(b) Maximum Range - 2500m.
(c) Rate of Fire - 03 missiles per minute.
(d) Hit Probability - 90% to 96%.
(e) Accuracy - 60 cm around point of aim, at maximum range.
(f) Generation - Second.
(g) Launcher Mount

(i) Traverse - 360 degrees.
(ii) Elevation - 8degrees + 20 degrees.
(iii) Magnification - 10 times.
(h) Guidance - Semi automatic optically tracked Wire guided.
(i) Penetration - At 90 degrees angle of.
(j) Impact 460mm - At 60 degrees angle of impact 230mm.

12. **Visit To Nearby Infantry / Fighting Arms Unit**. Cadets will be taken on a visit to any nearest Infantry Battalion to show the support weapons on ground where ever possible. In the absence of Infantry Battalion a short video can be screened showing the Infantry Battalion and company support weapons for better understanding of the cadets.

CHARACTERISTICS OF 5.56 MM INSAS RIFLE, AMMUNITION, FIRE POWER, STRIPPING,ASSEMBLING & CLEANING

13. The 5.56mmINSAS Rifle is produced by the Indian Ordinance Factory Board and is being used by the Indian army. It is the personal service weapon of a soldier. It is lighter than the AK47 and easy to handle.

14. **Characteristics, Ammunition and Fire Power.**

(a) Calibre - 5.56 mm.
(b) Length of Rifle without bayonet - 960 mm.
(c) Length of Rifle with bayonet - 1110 mm.
(d) Length of barrel - 464 mm.
(e) Weight

(i)	Fixed butt with empty magazine	-	3.6 kg.
(ii)	Fixed butt with loaded magazine	-	3.69 kg.
(iii)	Full magazine	-	90 gm.
(iv)	Bayonet	-	305 gm.

(f)	Effective range	-	400 m.
(g)	Sight Radius	-	470 mm.
(h)	Principle of Operation	-	Gas Operated.
(i)	Penetration	-	3 mm at 700m.
(j)	Mode of fire	-	Single Shot and Three Round Burst.
(k)	Rate of Fire		
	(a) Normal	-	60 rounds.
	(b) TRB (Three Round Burst)	-	90 rounds/min.
	(c) Intense	-	150 rounds/min.
	(d) Cyclic	-	600 to 650 rounds/min.

15. **Type of Ammunition**.

(a) Ball Round.
(b) Tracer Round.
(c) Blank Round.
(d) High Density (HD) Cartridge.

16. **Stripping**. 5.56mm INSAS rifle is the personnel weapon of a soldier. It is responsibility of the soldier to take care of his weapon. Stripping, assembling and cleaning of this weapon is very easy. If a soldier maintains the weapon properly, it will produce good result.

17. **Removing Magazine**. Hold the magazine with left hand and press them magazine catch to the front with thumb and then remove them again.

18. **Stripping Assembly Cover**. Cock the rifle and keep the change lever on 'S'. Press lever locking retainer with left hand and press the retainer to the front with right hand thumb. When retainer moves to the front, it is free from locking retainer. Now lift the assembly opening cover and move to the front.

19. **Stripping of Piston Extension Assembly**. While pressing retainer make the recoil spring assembly free from the guide and move it out.

20. **Stripping of Piston Extension Assembly**. Hold rear portion of piston extension and while pressing it down ward, remove it from the rifle.

21. **Stripping of Breech Block**. .Hold piston extension switch left hand, turning it upside down and with the right hand slide out the breech block from the recess.

22. **Stripping of Firing Pin**. Remove locking pin with the help of drift. Firing pin will come out.

23. **Stripping of Extractor**. Drift tool is used for stripping of the extractor. Press the extract or with the left hand thumb. Then press access pin with pointed portion of the drift. Access pin will come out. Now remove the extractor and spring from its recess.

24. **Stripping of Gas Plug and Projector Sight**. With the help of drift, remove the pin fixing gas plug and while pressing gas plug remove the gas block. Now the projector sight will also get removed.

25. **Stripping of Hand Guard**.The front edge of hand guard is in the cup near the gas block. Straighten the pin locking and remove it with the help of drift. Shifting the cup towards gas block, remove the hand guard.

26. **Stripping of Magazine**. While pressing retainer dimple remove bottom plate. Remove retainer spring and the platform.

27. **Assembling**. Assembling of the rifle is carried out in reverse sequence of stripping as under:-

(a) Assembling of magazine.

(b) Assembling of extractor and firing pin.
(c) Assembling of hand guard.
(d) Assembling of piston extension and breech block.
(e) To insert piston extension assembly in gas cylinder and bracket.
(f) To insert recoil spring assembly in piston extension.
(g) To insert piston extension assembly and recoil spring in body housing.
(h) To close cover assembly and loading of retainer.
(i) Fix magazine.

28. **Cleaning**. Items required for cleaning are as under :-
(a) Oil bottle with oil.
(b) Brush cleaning bore.
(c) Pull through.
(d) Road cleaning barrel.
(e) Tool adjusting sight/rear sight.
(f) Tool removing repair case.
(g) Chindi.
(h) Drift.

29. Rifle parts to be oiled are as under:-

(a) Complete breach box less its face.
(b) Magazine Catch.
(c) Trigger mechanism.
(d) Rifle spring Assembly.

30. Rifle parts not to be oiled are as under:-
(a) Barrel.
(b) Cylinder.
(c) Gas plug.
(d) Piston extension assembly.
(e) Magazine platform site.

31. Strip the rifle and clean its parts. Clean bore with pull through and chindi. Oil the bore and clean the cylinder gas. Clean cylinder with pull through and chindi. Gas affected parts like breech block, piston, extension and firing pin to be cleaned carefully so that gas fouling is completely removed. After cleaning, the parts should be oiled with a piece of cloth. Do not rub hard outer surface of the rifle with soaked oil.

CONCLUSION

32. The rifleman of an infantry is capable of closing with the enemy and neutralise him with his personnel weapon. However with the presence of company support weapons his punch increases. The company support weapons give additional effective strength to the Infantry Rifle Company both in defensive well as offensive operations The fire power with the Infantry Battalion as its support weapons in the form of 81 mm mortar and anti tank missile makes its formidable force to deal with enemy. It provides the fire support as well as metal support to the troops fighting on ground.

SUMMARY

1. 5.56 INSAS Rifle is the personal weapon of Indian Army. INSAS Rifle is 25% lighter and has 70% less recoil as compared to 7.62mm SLR. INSAS Rifle is lighter, compact and easy to fire. (INSAS-Indian Small Arms System).

(a) Types of ammunition used:-
(b) Ball round.
(c) Tracer round.
(d) Blank round.
(e) High Density cartridge.

2. Infantry Battalion is basic fighting unit of Indian Army. It can fight an opponent independently or as part of a larger force. The strength of an Infantry Battalion is 20 officers, 42 JCOs, 794 other ranks.

(a) Section is the smallest fighting unit of a Battalion.
(b) Capabilities are:-
  (i) Self-reliance.
  (ii) Ability to hold ground.
  (iii) Adaptability.
  (iv) Mobility.

3. Characteristics of company support weapons:-
(a) 7.62 mm Dragunov Sniper Rifle.
(b) 7.62 mm Medium Machine Gun.
(c) 30 mm Medium Grenade Launcher.
(d) 84 mm Rocket Launcher.

4. Characteristics of infantry battalion support weapons should be known by the cadets.

5. The infantry battalion support weapons causes' maximum casualty to the enemy.

6. Used both in offensive, defensive and special operations against the enemy.

7. Types of infantry battalion support weapons – 81 mm mortar and Anti-tank guided missile.

8. Characteristics of 81 mm mortar and anti-tank guided missiles – weight, range, rate of fire, muzzle velocity, elevation etc.

CHAPTER I : BIOGRAPHIES OF RENOWNED GENERALS

Introduction

1. Military History is a humanities discipline, within the scope of general historical recording of armed conflicts in the history of humanity, and its impact on the societies, their cultures, economies and changing national and international relationships. The essential subjects of military history study are the causes of war, the social and cultural foundations, military doctrine on each side, the logistics, leadership, technology, strategy, and tactics used, and how these changed over time. Thus it is a dynamic discipline.

Importance / Necessity of Studying Military History

2. **History of the World is Largely a History of Warfare**. Military history is a valuable field of study to both professional soldiers and civilians. As historian John Keegan said, "The written history of the world is largely a history of warfare." Yet one may argue if someone is not preparing for war, what is the point of studying the military past? War is such a dominant feature of human history that most modern nation-states and the nation-state system itself came into existence either through or because of war.

3. **All Civilisations have Wars in their Culture**. All civilizations have war in their cultures and "the states within which we live today came into existence largely through conquest, civil strife or struggles for independence. Consider the United States, a nation forged by the Revolutionary War, re-forged by the Civil War, and expanded through wars with Native Americans, Mexico and Spain. The study of history, politics and culture over the last millennia of human history would be impossible without a study of military history. Without military history, placing these massive changes in their proper context would be impossible.

4. **From War Arise Greatest Leaders in History**. Maximum leaders in history have arisen from this conflict / strive. To name a few – Abraham Lincoln of USA, Winston Churchill of Great Britain and Mrs. Indira Gandhi of India, are best remembered for their contribution in wars. These figures in history "understood the use of violence and did not hesitate to use it for their ends."

5. **Study of Military History Affects the Future of Civilisations**. More importantly, most voters lack any military experience, yet elect leaders-with predominantly the same lack of experience to control the most powerful armies in the world. These leaders will determine if and how their countries will wage wars. These decisions will affect the future of civilizations. Military history fills in the gap where personal experience is sorely lacking. As warfare continues to influence our world today, we who study military history must continue to learn, and to teach, the lessons demonstrated in history.

6. **Study of Military History Develops Leadership Qualities**. With study of Military History we come across many leaders with various leadership qualities. Study of military history helps us to know and develop the leadership qualities and learn about leadership traits. These include Alertness, Courage, Dependability, Endurance, Initiative, Integrity, Judgement, Justice, Knowledge, Loyalty, Sense of Humour, Truthfulness, Espirit-de-Corps, Maturity, Humility and Patience

7. **Study of Military History is a Must for Political and Military Commanders**. Applying Past Lessons help us to plan for the future. History can also show how certain plans/moves led to victory or defeat. Military and Civil leaders can strategize based on the history to develop more concrete techniques to win the battles in future. In addition, history has also taught us that it is important to have the support of our home front prior to sending our soldiers to war, especially for extended periods. We must also understand the ideology of our enemy. Taking the time to learn the mind set and thought process of an enemy does provide us with the adequate tools to properly prepare ourselves for current and future wars. Soldiers can learn strategy, operational art, tactics, techniques, battle procedures/drills, logistic and management aspects, leadership qualities and styles from military history.

BIOGRAPHY OF FIELD MARSHAL KODANDERA MADAPPA CARIAPPA, OBE

8. Field Marshal Kodandera "Kipper" Madappa Cariappa, OBE (28 January 1899 – 15th May 1993) was the first Indian Chief of Army Staff of the Indian Army and led the Indian forces on the Western Front during the Indo-Pakistan War of 1947-48. He is among only two Indian Army officers to hold the highest rank of Field Marshal (the other being Field Marshal Sam Bahadur Manekshaw). His distinguished military career spanned almost three decades, at the highest point of which, he was appointed as the Commander-in-Chief of the Indian Military in 1949.

9. **Early Life and Military Career**. Cariappa was born at Shanivarsante in Kodagu (Coorg) which is currently in Karnataka. In 1919, he joined the first batch of KCIOs (King's Commissioned Indian Officers) at The Daly College at Indore and was commissioned into the Carnatic Infantry at Bombay as a

Temporary Second Lieutenant. In 1927, Cariappa was promoted to Captain. He saw active service with the 37 (Prince of Wales) Dogra in Mesopotamia (present-day Iraq) and was later posted to the 2nd Queen Victoria's Own Rajput Light Infantry, which became his permanent regimental home. He was the first Indian officer to undergo the course at Staff College, Quetta in 1933. He was promoted to the rank of Major in 1938.

10. Cariappa served in Iraq, Syria and Iran from 1941–1942 and then in Burma in 1943-1944. He spent many of his soldiering years in Waziristan. He earned his 'Mentioned in Despatches' as DAA and QMG of General (later Field Marshal) Slim's 10th Division. He was the first Indian Officer to be given command of a unit in 1942. By 1944, Cariappa was a Temporary Lieutenant-Colonel. After command, he volunteered to serve in 26 Division engaged in clearing the Japanese from Burma, where he was decorated with an “Officer of the Order of the British Empire.” In 1946, he was promoted as the Brigadier of the Frontier Brigade Group. Post-Independence, Cariappa was appointed as the Deputy Chief of the General Staff with the rank of Major General. On promotion as Lieutenant General, he became the Eastern Army Commander.

11. On outbreak of war with Pakistan in 1947, he was moved as General Officer Commanding-in-Chief, Western Command and directed operations for the recapture of Zojila, Drass and Kargil and re-established a linkup with Leh. In all this, he showed tremendous energy in moving troops, against considerable odds and finally ensuring success. On 15 January 1949 Cariappa was appointed as the first Indian Commander-in-Chief of the Indian Army. Cariappa was then instrumental in turning an Imperial Army into a National Army.

Higher Commands and Offices

12. After his retirement from Indian Army in 1953, he served as the high commissioner to Australia and New Zealand till 1956. He was conferred with 'Order of the Chief Commander of the Legion Of Merit' by USA, Harry S. Truman. As a token of gratitude of the nation for the exemplary service rendered by him, the Government of India conferred Cariappa with the rank of Field Marshal on 14th January 1986 at the age of 87.

BIOGRAPHY OF FIELD MARSHAL SAM MANEKSHAW, MC

13. Field Marshal Sam Hormusji Framji Jamshedji Manekshaw, MC (3 April 1914 – 27 June 2008), popularly known as Sam Bahadur ("Sam the Brave"), was an Indian military leader. He was the first Indian Army officer to be promoted to the five-star rank of Field Marshal.

14. Though Manekshaw initially thought of pursuing his career as a doctor, he later joined the first batch of the Indian Military Academy (IMA) when it was established in 1932. Right from his days at IMA, he proved to be witty and humorous in nature. He was first attached to the 2nd Battalion of Royal Scots, and then later posted to the 4th Battalion of 12th Frontier Force Regiment, commonly known as the 54th Sikhs. Following partition, he later reassigned to the 16th Punjab Regiment, before being posted to the 3rd Battalion, 5th Gorkha Rifles, for a brief period later he adopted 8th Gorkha Rifles. His distinguished military career spanned four decades and five wars, beginning with service in the British Indian Army in World War II. During action in World War II, he was awarded the Military Cross for gallantry.

15. Manekshaw rose to become the 8th Chief of Army Staff of the Indian Army in 1969 and under his command, Indian forces conducted victorious campaign against Pakistan in the Indo-Pakistani War of 1971 that led to the liberation of Bangladesh in December 1971. Later, he was awarded the Padma Bhushan and the Padma Vibhushan for his services to the Indian nation.

16. **Early Life and Education**. Manekshaw was born on 3 April 1914 in Amritsar, Punjab to Parsi parents, Hormusji Manekshaw, a doctor, and his wife Hilla, who moved to Punjab from the city of Valsad on the coastal Gujarat. Sam's father served in the British Indian Army as a Captain in the medical services and also participated in World War I. .Hormusji and Hilla had six children of which Sam was the fifth one. Fali, Cilla, Jan and Sehroo preceded Sam and Sam was followed Jemi, who later joined the air force as a doctor and was the first Indian to be awarded the air surgeon's wings from Pensacola, United States. After completing his schooling in Punjab and Sherwood College, Nainital, and achieving a distinction in the School Certificate of the Cambridge Board at the age of 15, he asked his father to send him to London to become a gynaecologist. But his father refused to send him to London stating that he was not old enough.

17. In an act of rebellion against his father's refusal, Manekshaw took the entrance examination for enrollment into the Indian Military Academy and was one of the fifteen cadets to be selected through open competition. He stood sixth in the order of merit. Just before taking over as the Chief of the Army Staff, at a function on 5 June 1969 to mark the centenary of Sherwood College, Manekshaw recalled that his years at the college had prepared him for war as they had taught him to live alone and independently, to fight without relent, tolerate hunger for long periods and to hate his enemy.

18. **Military Career**. Manekshaw's military career spanned four decades, from the British era and World War II, to the three wars against Pakistan and China after India's independence in 1947. He held several regimental, staff and command assignments. Manekshaw went on to become the 8th chief of the army staff, led the Indian Army successfully in a war with Pakistan and became India's first field marshal after independence. On commissioning, as per the practices of that time, Manekshaw was first attached to the 2nd Battalion, The Royal Scots, a British battalion, and was later posted to the 4th Battalion, 12th Frontier Force Regiment, commonly known as the 54th Sikhs. Manekshaw was later reassigned to the 16th Punjab Regiment, before being posted to the 3rd Battalion, 5th Gorkha Rifles, and then adopted 8th Gorkha Rifle after partition and went on to become the Colonel of the Regiment of 8th Gorkha Rifle.

19. **World War II**. During World War II, the then-Captain Manekshaw saw action in Burma in the 1942 campaign on the Sittang River with the 4th Battalion, 12 Frontier Force Regiment,and had the rare distinction of being honoured for his bravery on the battlefield. During the fighting around Pagoda Hill, a key position on the left of the Sittang bridgehead, he led his company in a counter-attack against the invading Japanese Army and despite suffering 50% casualties the company managed to achieve its objective. After capturing the hill, Manekshaw was hit by a burst of Light Machine Gun fire and was severely wounded in the stomach. Observing the battle, Major General David Cowan, the then commander of the 17th Infantry Division, spotted Manekshaw holding on to life and, having witnessed his valour in the face of stiff resistance, rushed over to him. Fearing that Manekshaw would die, the general pinned his own Military Cross ribbon to Manekshaw saying, "A dead person cannot be awarded a Military Cross. The official recommendation for the MC states that the success of the attack was largely due to the excellent leadership and bearing of Captain Manekshaw. This award was made official with the publication of the notification in a supplement to the London Gazette on 21 April 1942 (dated 23 April 1942).

20. **Chief of the Army Staff**. Then Chief of the Army Staff (COAS) General P P Kumar Mangalam was due to retire in June 1969. Though Manekshaw was the senior-most commander in army, then Defence Minister Sardar Swaran Singh was in favour of Lt Gen Harbaksh Singh, who had played a key role as the GOC-in-C of Western Command during the1965 Indo-Pak war. Putting the rumours of Harbaksh Singh taking charge as the COAS to an end, Manekshaw was appointed as the 8th Chief of the Army Staff on 8 June 1969. As the Chief of the Army Staff, he developed the Indian Army into an efficient instrument of war. During his tenure as COAS, he was instrumental in stopping the implementation of reservations for scheduled castes and scheduled tribes in the army.

21. **Indo-Pakistan War of 1971**. Towards the end of April 1971, Indira Gandhi, the Prime Minister of India, during a cabinet meeting, asked Manekshaw if he was prepared to go to war with Pakistan. In response, Manekshaw told her that his single armoured division and two infantry divisions were deployed elsewhere, that only 13 of his 189 tanks were fit to fight, and that they would be competing for rail carriage with the grain harvest at that point of time. He also pointed out that the Himalayan passes would soon open up, with the forthcoming monsoon in East Pakistan, which would result in heavy flooding. When Indira Gandhi asked the cabinet to leave the room and the chief to stay, he offered to resign. She declined to accept it, but sought his advice. He then said he could guarantee victory if she would allow him to prepare for the conflict on his terms, and set a date for it. These were acceded to by the Prime Minister.

22. Under Manekshaw's direction, the army launched several preparatory operations in East Pakistan including training and equipping the Mukti Bahini (a local group of freedom fighters), and about three brigades from the regular Bangladesh troops were trained. As an additional measure, 75,000 guerrillas were trained and equipped with arms and ammunition. These forces were used to harass the Pakistani army stationed in East Pakistan sporadically in the lead up to the war.

23. The war started on 3 December 1971, when Pakistani aircraft bombed Indian Air Force bases in the western sector. Manekshaw instructed Lt Gen J F R Jacob, Chief of Staff Eastern Command, to inform the Indian prime minister that orders were being issued for the movement of troops from Eastern Command. The following day, the navy and the air force also initiated full-scale operations on both eastern and western fronts. The veto used by the Russians against the United States' proposal to implement a cease-fire in the United Nations proved decisive in securing India's victory. Manekshaw addressed the Pakistani troops three times via radio messages on the subject of surrender, assuring them that they would receive honourable treatment from the Indian troops. The messages were broadcast on the 9th, 11th and 15 December. The last two messages were delivered as replies to the messages from Maj Gen Rao Farman Ali and Lt Gen Amir Abdullah Khan Niazi. These messages from the Pakistani commanders to their troops were to have a devastating effect on their side, subsequently leading to their defeat.

24. Though on 11 December, Ali messaged the United Nations requesting for a cease-fire, it was not authorized by the President Yahya Khan and the fighting continued. Following several discussions and

consultations, and subsequent attacks by the Indian forces, Yahya decided to stop the war in order to save the lives of the Pakistani soldiers. The actual decision to surrender was taken by Niazi on 15 December and was conveyed to Manekshaw through the United States Consul General in Dhaka (then Dacca) via Washington. But Manekshaw replied that he would stop the war only if the Pakistani troops surrendered to their Indian counterparts by 9:00 a.m. on 16 December. Later the deadline was extended to 3:00 p.m. of the same day on Niazi's request. The Instrument of Surrender was formally signed on 16 December 1971.

25. **Promotion to Field Marshal**. After the end of the war, Indira Gandhi decided to promote Manekshaw to the rank of Field Marshal and subsequently appoint him as the Chief of the Defence Staff (CDS). However, after several objections from the bureaucracy and the commanders of the navy and the air force, the latter was dropped. Though Manekshaw was to retire in June 1972, his term was extended by a period of six months. On 3 December 1973, Manekshaw was conferred with the rank of Field Marshal at a ceremony held at Rashtrapati Bhavan.

MARSHAL OF THE AIR FORCE : ARJAN SINGH

26. Marshal of the Indian Air Force Arjan Singh, DFC was born on 15 April 1919. He is the only officer of the Indian Air Force to be promoted to five-star rank, equal to a Field Marshal, to which he was promoted in 2002. He was born in the Punjab town of Lyallpur, British India, into Aulakh family.

27. **Early Life and Career**. Arjan Singh was born on 15 April 1919 in Lyallpur in the Punjab in what was then British India. He was educated at Montgomery, India (now in Pakistan). He entered the RAF College Cranwell in 1938 and was commissioned as a Pilot Officer in December 1939. As a distinguished graduate of the RAF College, Singh's portrait is found on the walls of the College's west staircase. Air Marshal Arjan Singh led No.1 Squadron, Indian Air Force into command during the Arakan Campaign in 1944. He was awarded the Distinguished Flying Cross (DFC) in 1944, and commanded the Indian Air Force Exhibition Flight in 1945.

28. **Career and Commands Held**. He was Chief of the Air Staff (CAS), from 1 August 1964 to 15 July 1969, and was awarded the Padma Vibhushan in 1965. He also became the first Air Chief Marshal of the Indian Air Force when, in recognition of the Air Force contribution in the 1965 war, the rank of the Chief of Air Staff was upgraded to that of Air Chief Marshal. After he retired in 1969 at the age of 50, he was appointed the Indian Ambassador to Switzerland in 1971. He concurrently served as the Ambassador to the Vatican. He was appointed High Commissioner to Kenya in 1974. He was member of the Minorities Commission, Government of India from 1975-1981. He was Lt. Governor of Delhi from Dec 1989 - Dec 1990 and was made Marshal of the Air Force in January, 2002. He expired on 16th Sep 2017.

29. **Career Highlights**.

(a) 1938-Entered RAF College Cranwell as a Flight Cadet.
(b) 1939-Commissioned in Royal Air Force as a Pilot Officer.
(c) 1945-Awarded Distinguished Flying Cross.
(d) 1964-Chief of Air Staff (Air Marshal).
(e) 1965-Chief of Air Staff rank upgraded to Air Chief Marshal.
(f) 1965-Awarded Padma Vibhushan.
(g) 1969-Retired from Indian Air Force.
(h) 1971-Ambassador to Switzerland.
(i) 1974-High Commissioner to Kenya.
(j) 2002-Marshal of the Air Force.

CONCLUSION

30. Today the Indian Military is the third largest in the world. As India is planning to emerge as a regional super power, it is mandatory for its civilian and military leaders to learn from military history to be ready to meet future challenges. We can learn a lot from the biographies of Field Marshal Cariappa, Field Marshal Sam Manekshaw and Marshal of the Air Force Arjan Singh. Therefore, it is important for all cadets to study the biographies of Field Marshal Cariappa and Field Marshal Sam Manekshaw. The Leadership qualities displayed by them worth emulating in every walks of life.

CHAPTER II : INDIAN ARMY WAR HEROES PVC

Introduction

1. Our Army has been involved in five major wars with our neighbouring countries. We have fought four wars with Pakistan and one with China. Other major operations undertaken by the army include Operation Meghdoot and Operation Cactus, Operation Pawan and Operation Rakshak. Apart from above mentioned operations, the army has also been an active participant in United Nations peacekeeping missions. The Indian Army has shown thorough professionalism, dedication and devotion while participating in all these wars and operations. And for the same many gallantry awards have been awarded to Indian Army for displaying courage, bravery and selfless dedication beyond the call of duty.

2. **Param Vir Chakra and War Heroes Decorated with PVCs**. The **Param Veer Chakra (PVC)** is India's highest Military decoration awarded for highest degree of valour or self-sacrifice in the face of enemy. The medal has been awarded 21 times 14 of which were posthumous awards. Literally meaning "Wheels (or cross) of the ultimate brave'' it is similar to Medal of Honour in the United States and the Victoria Cross in the United Kingdom. The PVC was established on 26 January 1950 by the President of India, with effect from 15 August 1947. It can be awarded to Officers or enlisted personnel from all branches of the Indian military. It is the highest gallantry award of the Government of India.

3. **The Design**. The medal was designed by Savitri Khanolkar who was married to an Indian Army Officer, Vikram Khanolkar of the Sikh Regiment. This was done following a request from the first Adjutant General, Major General HiraLal who in turn had been entrusted with the responsibility of coming up with an Indian equivalent of the Victoria Cross by Pandit Jawaharlal Nehru.The medal is a circular bronze disc 1.375 inches (3.49cms) in diameter. The state emblem appears in the Centre, on a raised circle surrounding this, four replicas of Vajra, the all-powerful mythic weapon of Indra the ancient Vedic king of Gods. The motif symbolizes the sacrifice of Rishi Dadhichi, who had donated his bones to Gods for making Vajra

RECIPIENTS OF THE PARAMVIR CHAKRAS.

4. The country has awarded 21 Param Veer Chakras for exemplary courage and bravery to the following brave soldiers :-

(a) Maj Somnath Sharma, 4 KUMAON Badgam, Kashmir November 3, 1947.

(b) Naik Jadunath Singh Rajput Taindhara, Naushera, Kashmir February 6, 1948.

(c) 2nd Lt Rama Raghoba Rane Bombay Engineers Naushera Rajouri Road April 8-11, 1948.

(d) Company Haviladar Major Piru Singh 6 Rajputana Rifles Tithwal sector, J&K July 18, 1948.

(e) Lance Naik Karam Singh 1 Sikh Tithwal sector, J&K October 13, 1948.

(f) Captain Gurbachan Singh Salaria 3/1 Gorkha Rifles Elizabethville, Katanga, Congo December 5, 1961.

(g) Major Dhan Singh Thapa 1/8 Gorkha Rifles Ladakh October 21, 1962.

(h) Subedar Joginder Singh 1 Sikh Tawang, Arunachal October 20-23, 1962.

(i) Major Shaitan Singh 13 Kumaon Regiment Rezang La, Chusul sector, Ladakh November 18, 1962.

(j) Lt Col A B Tarapore 17 Poona Horse Phillora, Sialkot, Pakistan September 11-16, 1965.

(k) Company Quartermaster Havildar Abdul Hamid 4 Grenadiers Cheema, Khem Karan September 10, 1965.

(l) Lance Naik Albert Ekka 14 Guards, Gangasagar, 6 1/2km west of Agartala December 4, 1971.

(m) Flying Officer Nirmaljit Singh Sekhon No.18 "Flying Bullets" Squadron Srinagar December 14, 1971.

(n) Second Lt Arun Khetarpal 17 Poona Horse, 47 Infantry Brigade Shakargarh sector December 16, 1971.

(o) Major Hoshiar Singh Grenadiers Regiment Shakargarh sector December 17, 1971.

(p) Naib Subedar Bana Singh J&K Light Infantry Siachen 1987.

(q) Major Ramaswamy Parameswaram Mahar Regiment Sri Lanka (Operation Pawan) November 25, 1987.

(r) Captain Vikram Batra13 J&K Rifles July 7, 1999.

(s) Lt Manoj Kumar Pandey 1/11 Gorkha Rifles July 2-3, 1999.

(t) Grenadier Yogendra Singh Yadav 18 Grenadiers July 3-4, 1999.

(u) Rifleman Sanjay Kumar13 J&k Rifles July 4, 1999.

5. **CHM PIRU SINGH, PVC**.

Born	20 May 1918, Beri, Rajasthan.
Died	18 July 1948 (aged 30) Martyred in action at Tithwal, Kashmir
Years of service	1936–1948
Rank	Company Havildar Major
Unit	6th Battalion, Rajputna Rifles
Battles/wars	Indo-Pakistani War of 1947
Awards	Param Vir Chakra

6. **Introduction** Company Havildar Major Piru Singh Shekhawat (20 May 1918 – 18 July 1948) was an Indian Army soldier, awarded the Param Vir Chakra (PVC), India's highest military decoration.
Singh enrolled in the British Indian Army on 20 May 1936, and was assigned to the 1st Punjab Regiment. Between 1940 and 1945, he served on the North-West Frontier and as an instructor, before deploying to Japan as part of the British Commonwealth Occupation Force. After independence, he took part in the Indo-Pakistani War of 1947, serving with the Indian Army's 6th Rajputana Rifles. During the battle, Singh was part of the leading section of a company that was assigned to capture a Pakistani post at Tithwal, in Jammu and Kashmir. Soon after their attack was launched, the company suffered heavy casualties. In time, Singh successfully occupied a Pakistani medium machine-gun post. But, by that time, the entire company lay dead or wounded. Singh was left alone to achieve the objective. He moved out and lobbed grenades at the next enemy post. Before moving to another trench, he received a mortal bullet wound to the head.

7. **Early Life**. Piru Singh was born on 20 May 1918, in village Beri, Jhunjhunu, Rajasthan. He was the son of Lal Singh. His family consisted of seven children three brothers and four sisters with Singh being the youngest son. As a young boy, Singh always hated school, as he was unable to cope with the restricted environment. One day, after being scolded by his class teacher for quarreling with one of his classmates, Singh ran away, and never returned to school. After that, Singh continued to help his parents in their farm, and grew up to be well-built and handsome youth. Shikar, a local Indian sport, was his favourite game. Though Singh wanted to join the army from his childhood, he was rejected twice, as he was too young, before he was accepted at the age of eighteen.

8. **War 1947**. Following tensions between the newly independent nations of India and Pakistan, war broke out over control of the princely state of Jammu and Kashmir in October 1947, shortly after Singh returned from Japan. In July 1948, Pakistan launched offensive strikes in the Tithwal sector of Jammu and Kashmir, and captured a ring contour on 8 July. This forced the Indian troops stationed in the forward positions across river Kishanganga to retreat. In an attempt to reverse the situation, Singh's unit, the 6th Battalion of the Rajputana Rifles, was moved from Uri to Tithwal, and was assigned to the 163rd Brigade. The troops took position on the Tithwalbridge.

9. On 11 July, the Indian troops commenced their attack. These strikes continued for another four days. But reports regarding the situation suggested that the Pakistanis were still in command of a strategically important position and the Indian commanders decided that these had to be captured before the advance could continue. Apart from this position, another position was also to be captured by the Indians. The task of capturing these two positions was assigned to the 6th Rajputana Rifles. Two companies were assigned to the operation, with the battalion's 'C' Company securing the second position after the first was captured by 'D' Company.

10. On 18 July, the 'D' Company launched it first attack at 01:30. The path to the position held by the Pakistani troops was just 1 metre (3 ft 3 in) wide, and deep ravines lay on either side. This narrow path was overlooked by hidden Pakistani bunkers that allowed both observation and clear fields of fire for the defending troops. As they advanced, the Indian company was subjected to heavy shelling from the Pakistanis, and within half an hour the company had recorded fifty-one casualties.

11. During the battle, Singh's section, leading the company, was sheared down to half strength due to heavy casualties. Singh rushed towards a Pakistani medium machine gun post, which was causing most of the casualties, during which he suffered multiple shrapnel wounds across his body as the Pakistani defenders began rolling grenades down from the heights. Undeterred, Singh continued to advance adopting the battle cry, "Raja Ramchandra Ki Jai" (English: Hail Lord Rama). Soon he occupied the post killing the men on guard with his bayonet and Sten gun.

12. But by the time he captured the position, the rest of his company lay dead or wounded. Singh was left alone to achieve the objective assigned. He advanced towards the second Pakistani medium machine gun post. At this juncture, he was almost blinded by a grenade that blast at his face. His Sten gun ammunition had run out. Singh moved out of the trench and lobbed grenades at the next Pakistani post. Meanwhile, he jumped into another trench, and killed two Pakistani soldiers with his bayonet. Before he was able to move out of the trench, he was hit by a bullet in his head. As he succumbed to his wounds, Singh hurled a grenade into a nearby Pakistani trench.

13. **Citation**. On 17 July 1948, Company Havildar Major Singh was posthumously was awarded the India's highest military decoration, the Param Vir Chakra. The citation reads of follows:
“South of Tithwal, 'D' Company, of which No 2831592 Piru Singh, was Havildar Major was detailed to attack and capture an enemy occupied hill feature. The enemy had well dug in positions and had sited his MMGs so as to cover all possible approaches. As the attack advanced, it was met with heavy MMG fire from both flanks. Volleys of grenades were hurled down from enemy bunkers. Company Havildar Major Piru Singh was then with the forward most Section of the company. Seeing more than half of the Section killed or wounded, he did not lose courage. With battle cries he encouraged the remaining men and rushed forward with great determination onto the nearest enemy MMG position. Grenade splinters ripping his clothes and wounding him at several places, he continued to advance without the least regard for his safety. He was on top of the MMG position wounding the gun crew with Sten gun fire. With complete disregard to his bleeding wounds he made a mad jump on the MMG crew bayoneting them to death, thus silencing the gun. By then he suddenly realized that he was the sole survivor of the section, the rest of them either dead or wounded. Another grenade thrown at him wounded him in the face. With blood dripping from his face wounds in his eyes, he crawled out of the trench, hurling grenades at the next enemy position”.

14. **MAJ SHAITAN SINGH,PVC**.

Born	December 1, 1924, Jodhpur, Rajasthan.
Died	November 18, 1962 (aged 37) Rezang La,Jammu and Kashmir, India.
Years of service	1949–1962.
Rank	Major.
Unit	13 KUMAON.
Battles / War	Sino-Indian War.

15. **Introduction** Major Shaitan Singh was born on December 1, 1924 at Jodhpur in Rajasthan. His father was Lt Col Hem Singh Bhati.

16. **Military Action**. The 'C' Company of the battalion, led by Singh, held this crucial position at Rezang La, at a height of 5000 metres. The company area was defended by three platoon positions and the surrounding terrain isolated it from the rest of the battalion. The expected Chinese attack on Rezang La came on November 18 in the morning. It was the end of a very cold winter night, with light snow falling. The icy winds howling through Rezang La were biting and benumbing. More than the thin air and cold, the location of Rezang La had a more serious drawback. It was crested to Indian artillery because of an intervening feature, which meant that they had to make without the protective comfort of the big guns. In the dim light of the morning, the Chinese were seen advancing through nullahs to attack No.7 and No.8 Shaitan Singh 2 platoon positions. The Indian Army troops fell on their prepared positions to face the Chinese offensive.

17. At 0500 hours when the visibility improved, both platoons opened up on the advancing Chinese with rifles, light machine guns, grenades and mortars. Indian artillery could, however, not be used. The nullahs were littered with dead bodies. The survivors took position behind boulders and the dead bodies. The Chinese, though they failed the first frontal attack, were not discouraged. They subjected the Indian positions to intense artillery and mortar fire at about 0540 hours. Soon about 350 Chinese troops commenced advance through the nullahs. This time, No.9 Platoon, which held fire till the enemy was within 90 metres opened up with all weapons in their possession. Within minutes, the nullahs were again full of dead bodies, mainly of the Chinese. I in frontal attack, the enemy, approximately 400 strong, then attacked from the rear of the company position. They simultaneously opened intense medium machine gun fire on No.8 Platoon. This attack was contained at the barbed wire fencing of the post. The Chinese then resorted to heavy artillery and mortar shelling. An assault group of 120 Chinese also charged No.7 Platoon position from the rear. However, Indian Army 3-inch mortar killed many of them. When 20 survivors charged the post, about a dozen Kumaonis rushed out of their trenches to engage them in a hand-to-hand combat.

18. Meanwhile, the Chinese brought up fresh reinforcements. The encirclement of No.7 Platoon was now complete. The platoon, however, fought valiantly till there was no survivor. No.8 Platoon also fought bravely to the last round. Singh displayed exemplary leadership and courage in the battle of Rezang La. By all accounts, he led his troops most admirably. Unmindful of his personal safety he moved from one platoon post to another and encouraged his men to fight. While moving among the posts he was seriously wounded, by a sniping Chinese MMG. But he continued to fight along with his men. While he was being evacuated by two of his comrades, the Chinese brought heavy machine gun fire on them. Singh sensed danger to their lives and ordered them to leave him. They placed him behind a boulder on the slopes of a hill, where he died. The Chinese announced a unilateral ceasefire on November 21, 1962. In this action, 109 Kumaonis out of a total of 123 were killed. Of the 14 survivors, 9 were severely injured.

19. The Chinese suffered more than a thousand casualties. After the war was over, the body of Singh was found at the same place, dead from the bullet wound and the freezing cold. It was flown to Jodhpur and cremated with full military honours. Singh was awarded ParamVir Chakra, the highest wartime gallantry medal, posthumously, for his leadership and devotion to duty.

20. **Citation**. The citation for the ParamVir Chakra awarded to him reads: Major Shaitan Singh was commanding a company of an infantry battalion deployed at Rezang La in the Chushul sector at a height of about 17,000 feet. The locality was isolated from the main defended sector and consisted of five platoon-defended positions. On 18 November 1962, the Chinese forces subjected the company position to heavy artillery, mortar and small arms fire and attacked it in overwhelming strength in several successive waves. Against heavy odds, our troops beat back successive waves of enemy attack.

21. During the action, Major Shaitan Singh dominated the scene of operations and moved at great personal risk from one platoon post to another, sustaining the morale of his hard-pressed platoon posts. While doing so he was seriously wounded but continued to encourage and lead his men who, following his brave example, fought gallantly and inflicted heavy casualties on the enemy. For every man lost to us, the enemy lost four or five. When Major Shaitan Singh fell disabled by wounds in his arms and abdomen, his men tried to evacuate him but they came under heavy machine-gun fire. Major Shaitan Singh then ordered his men to leave him to his fate in order to save their lives.

22. **CAPTAIN VIKRAM BATRA, PVC**.

Captain
Vikram Batra
Param Vir Chakra

Nickname(s)	Sher Shah
Born	9 September 1974 Palampur, Himachal Pradesh, India
Died	7 July 1999 (aged 24) Pt. 4875, Kargil, Jammu & Kashmir, India
Allegiance	Republic of India
Service/branch	Indian Army
Years of service	1996–1999
Rank	Captain
Service number	IC 57556
Unit	13 JAK RIF
Battles/wars	Kargil War Operation Vijay Battle of Tiger Hill
Awards	Param Vir Chakra

23. Captain Vikram Batra, PVC (9 September 1974 – 7 July 1999) was an officer of the Indian Army, posthumously awarded with the Param Veer Chakra, India's highest and prestigious award for valour, for his actions during the 1999 Kargil War in Kashmir between India and Pakistan. He led one of the toughest operations in mountain warfare in Indian history. He was often called as ''Sher Shah'' in the intercepted messages of the Pakistan army.

24. **Early Life and Career**. Vikram Batra was born on 9 September 1974 in Ghuggar village near Palampur, Himachal Pradesh, to GL Batra and Jai Kamal Batra. He got his primary education from his mother, who herself was a teacher. He received his education up to Middle Standard at the D.A.V. Public School in Palampur and up to senior secondary stage in Central School, Palampur. After passing his 10+2 in 1992 from Central School Palampur, he got admitted in D.A.V. College, Chandigarh in B.Sc where he was adjudged the best N.C.C. Cadet (Air Wing) in two zones. Later, he was selected to join the Indian Military Academy in Dehradun in 1996 in Jessore company of Manekshaw Battalion, and was commissioned in the

Indian Army as a Lieutenant of the 13 Jammu & Kashmir Rifles at Sopore, in Jammu and Kashmir. He rose to the rank of Captain.

Heroic Act of Capt Bikram Batra, PVC in Kargil War

25. During the Kargil invasion of 1999 by Pakistan, Lt Batra (at time), 13 JAK Rifles, and his Delta Company were ordered to recapture peak 5140 on June 19, 1999 five weeks after the war began. Nicknamed *SherShah* ('Lion King') in Urdu for his courage which also doubled as his call sign, he decided to approach the hill from the rear, aiming to surprise the Pakistani defenders. He and his men ascended the sheer rock-cliff, but as the group neared the top, the enemy pinned them on the face of the bare cliff with machine gun fire. Captain Batra, along with five of his men, climbed up regardless and after reaching the top, hurled two grenades at the machine gun post. He single-handedly killed three enemy soldiers in close combat. He was seriously injured in the process, but insisted on regrouping his men to continue with the mission. Inspired by the courage displayed by Captain Batra, the soldiers of 13 JAK Rifles charged the enemy position and captured Point 5140 at 3:30 a.m. on 20 June 1999. His company is credited with killing at least eight Pakistani intruders and recovering a heavy machine gun.

20. The capture of Point 5140 set in motion a string of successes, such as Point 5100, Point 4700, Junction Peak and Three Pimples. Along with fellow Captain Anuj Nayyar, Batra led his men to victory with the recapture of Point 4750 and Point 4875. This led to the fall of Tiger Hill and India's eventual hold on the valley was strengthened.

21. Nine days later, Vikram Batra was assigned to an urgent mission to recapture peak 4875. This was one of the most difficult peaks to capture as the Pakistani troops sat above the peak at 16,000 feet and the climb gradient was 80 degrees. The fog made matters worse for Batra and his team. In the early morning hours of 7 July 1999, he commanded a mission to rescue an injured officer during a Pakistani counterattack against Point 4875. During the rescue attempt, he pushed aside his Subedar, saying ***"Tu baal-bacche dar hai, hat ja peeche****."(You have children, step aside)* and was killed in action while clearing enemy positions. His last words were, "*Jai Mata Di.*", which is a Punjabi creed referring to Durgadevi, the Hindu Goddess of Victory.

CONCLUSION

22. Soldiers face the dangers and vagaries of war and sacrifice their lives for their motherland. The Indian Nation also honours its bravest of the brave soldiers by conferring on them the highest gallantry award "Param Vir Chakra" as recognition of their bravery and sacrifice.

CHAPTER III : STUDY OF BATTLES OF INDO-PAK WAR 1965, 1971, OPREATION MEGHDOOT AND KARGIL

Introduction

1. The partition of the subcontinent came into effect on15 August 1947, when India gained independence. Pakistan declared independence a day earlier. At the time of independence the old Indian Army stood divided between Pakistan and India. Instead of large scale celebrations, riots and mass killing between Hindus and Muslims in Punjab and Bengal intensified. It also led to acute suffering and misery of the displaced people, a part from colossal loss of precious human lives and destruction of property due to communal riots and retribution.

2. Taking advantage of communal strife, in Oct 1947 Pakistani troops soon crossed over into Kashmir to participate into an undeclared war with India. The tribal' volunteers' along with Pakistani regulars had by then overrun large tracts of Jammu province and the Valley, which shared a porous border with Pakistan. It was when they had reached Badgaon, on the suburbs of Srinagar that the Maharaja of J&K signed the Instrument of Accession and put in a bid for India's military assistance. Indian Army then swung into action to save J&K.

3. Despite the accession of the state, a part of Kashmir, known as Pakistan Occupied Kashmir, remains under the illegal occupation of Pakistan, and this has remained a contentious issue between both nations. Since 1947-1948 war, India and Pakistan have fought the following wars: -

(a) 1965War.
(b) 1971 War.
(c) 1999 Kargil War.
(d) Proxy war since1988 till date.

INDO-PAKISTANI WAR 1965

4. The Indo-Pakistan war of 1965 was a culmination of skirmishes that took place between April 1965 and September 1965 between Pakistan and India. The conflict began following Pakistan's Operation Gibraltar, which was designed to infiltrate forces into Jammu and Kashmir to participate in insurgency against Indian rule. In retaliation, India reacted swiftly and launched a counter attack and a second confrontation with Pakistan took place in 1965, largely over Kashmir. Pakistani President Ayub Khan launched Operation Gibraltar in August1965, during which several Pakistani paramilitary troops infiltrated into Indian-administered Kashmir and attempted to ignite an anti-India agitation in Jammu and Kashmir. Pakistani leaders believed that India, which was still recovering from the disastrous Sino-Indian War, would be unable to deal with a military thrust and a Kashmiri rebellion. Pakistan launched Operation Grand Slam on 1 September, invading India's Chamb- Jaurian sector.

5. **Offensive on Pakistan**. Initially, the Indian Army met with considerable resistance in the northern sector. After launching prolonged artillery barrages against Pakistan, India was able to capture three important mountain positions in Kashmir. By 9 September, the Indian Army had made considerable in-roads into Pakistan. India had its largest haul of Pakistani tanks when the offensive of Pakistan's 1st Armoured Division was blunted at the Battle of Asal Uttar, which took place on 10 September near Khemkaran in Punjab. Another tank battle of the war came in the form of the Battle of Chawinda, the largest tank battle in history after World War II. Pakistan's defeat at the Battle of Asal Uttar and Dograi hastened the end of the conflict.

6. **Battle of Dograi**. To relieve pressure at Chamb–Jaurian Sector in J&K, 15 Infantry Division launched offensive in Lahore sector. 3 JAT of 54 Infantry Brigade crossed Ichogil canal and captured the town ship of Dograi and was just 13 miles from Lahore on 23 September 1965. On23 September 1965 cease fire was announced. A decision to return back to pre-war positions was taken following the Tashkent Declaration.

INDO-PAKISTAN WAR 1971

7. An independence movement broke out in East Pakistan which was brutally crushed by Pakistani forces. Due to large-scale atrocities against them, thousands of Bengalis took refuge in neighbouring India

causing major refugee crisis. In early 1971, India declared its full-support for the Bengali rebels, known as Mukti Bahini, and Indian agents were extensively involved in covert operations to aid them. Wary of India's growing involvement in the Bengali rebellion, the Pakistan Air Force (PAF) launched a preemptive strike on 10 Indian air bases at Srinagar, Jammu, Pathankot, Amritsar, Agra, Adampur, Jodhpur, Jaisalmer, Uttarlai and Sirsa at 1745 hours on 3 December. This aerial offensive, however, failed to accomplish its stated objectives and gave India its excuse to declare a full-scale war against Pakistan the same day. By midnight, the Indian Army, accompanied by Indian Air Force, launched a major three-pronged assault into East Pakistan. The Indian Army won several battles on the eastern front including the decisive of Battle of Hilli, which was the only front where the Pakistani Army was able to build up considerable resistance. India's massive early gains was largely attributed to the speed and flexibility with which Indian armoured divisions moved across East Pakistan.

8. **Battle of Longewala**. Pakistan launched a counter-attack against India on the western front. On 4 December 1971, 'A' company of the 23rd Battalion of India's Punjab Regiment detected and intercepted the movement of the 51st Infantry Brigade of the Pakistani Army near Ramgarh, Rajasthan. The battle of Longewala ensured during which the A company, though being out numbered, thwarted the Pakistani advance until the Indian Air Force directed its fighters to engage the Pakistani tanks. By the time the battle had ended, 38 Pakistani tanks and 100 armoured vehicles were either destroyed or abandoned. About 200 Pakistani troops were killed in action during the battle while only 2 Indian soldiers lost their lives. Pakistan suffered another major defeat on the western front during the Battle of Basantar which was fought from 4 December to 16 December. By the end of the battle, about 66 Pakistani tanks were destroyed and 40 more were captured. In return, Pakistani forces were able to destroy only 11 Indian tanks. By 16 December, Pakistan had lost size able territory on both eastern and western fronts.

9. **Surrender of Pakistan Army in Dhaka**. Under the command of Lt General JS Arora, the '3 Corps' of the Indian Army, which had invaded East Pakistan, entered Dhaka and forced Pakistani forces to surrender on 16 Dec 1971, one day after the Battle of Basantar. After Pakistan's Lt General AAK. Niazi signed the Instrument of Surrender, India took more than 90,000 Pakistani prisoners of war.

OPREATION MEGHDOOT : SIACHEN GLACIER

Introduction

10. The Siachen Glacier became a bone of contention following a vague demarcation of territories in the Karachi Agreement of July 1949 which did not exactly specify who had authority over the Siachen Glacier area. Indian interpretation was that Pakistan territory extended only Saltoro Ridge based on the Simla agreement where the territorial line's route after the last demarcated Point NJ9842 was "thence North to the glaciers." Pakistan interpretation was that their territory continued northeast from Point NJ9842 to the Karakoram Pass. As a result, both nations claimed the barren heights and the Siachen Glacier. In the 1970s and early 1980s, Pakistan permitted expeditions to climb the peaks in the Siachen region from the Pakistani side, perhaps in an attempt to reinforce their claim on the area as these expeditions received permits obtained from the Government of Pakistan and in many cases a liaison officer from the Pakistan army accompanied the teams.

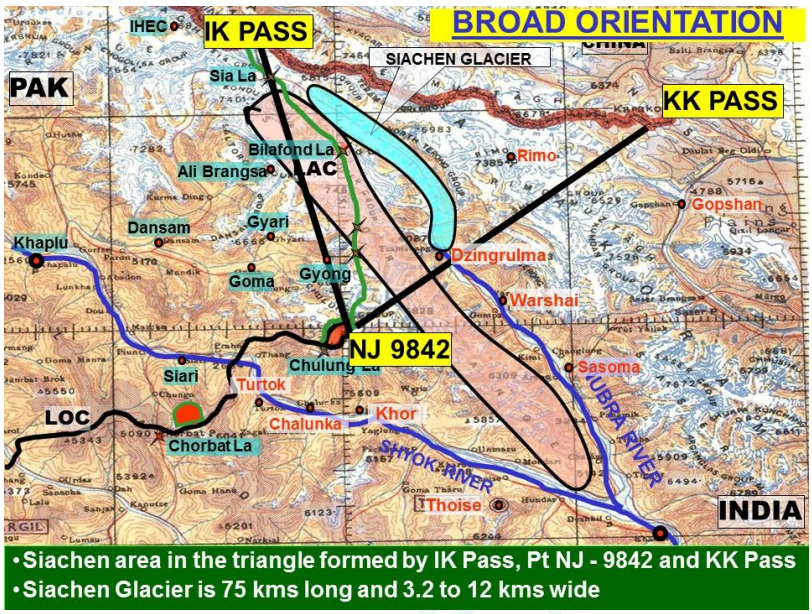
11. In 1978, the Indian Army also allowed mountaineering expeditions to the glacier, approaching from its side. The most notable one was the one launched by Colonel Narinder "Bull" Kumar of the Indian Army, who led an expedition to Teram Kangri, along with medical officer Captain AVS Gupta. The first air landing on the glacier was carried out on 6 October 1978 when two casualties were evacuated from the Advance Base Camp in a Chetak helicopter. Contention over the glacier was aggravated by these expeditions, through both sides asserting their claims.

12. Notably, when Pakistan gave permission to a Japanese expedition to scale an important peak (Rimo I) in 1984, it further fueled the suspicion of the Indian Government of Pakistani attempts to legitimize their claim. The peak, located east of the Siachen Glacier, also overlooks the north western areas of the Aksai Chin area which is occupied by China but claimed by India. The Indian military believed that such an expedition could further a link for a trade route from the north eastern (Chinese) to the southwestern (Pakistani) side of the Karakoram Range and eventually provide a strategic, advantage to the Pakistani Armed Forces.

13. **Back Ground.** The Indian military decided to deploy troops from Northern Ladakh region as well as some paramilitary forces to the glacier area. Most of the troops had been acclimatized to the extremities of the glacier through a training expedition to Antarctica in 1982 before eventually launching the operation to occupy complete glacier. In 1983, Pakistani generals decided to stake their claim through troop deployments to the Siachen glacier. After analysing the Indian Army's mountaineering expeditions, they feared that India might capture key ridges and passes near the glacier, and decided to send their own troops first. Islamabad ordered Arctic-weather gear from a London supplier, unaware that the same supplier provided outfits to the Indians. The Indians were informed about this development and initiated their own plan, providing them with a head start.

14. **Operation Meghdoot**. The Indian Army planned an operation to control the glacier by 13 April 1984, to pre empt the Pakistani Army by about 4 days, as intelligence had reported that the Pakistani operation planned to occupy the glacier by 17 April. Named for the divine cloud messenger, Meghaduta, from the 4th century AD Sanskrit play by Kalidasa, Operation Meghdoot was led by Lieutenant General Prem Nath Hoon. The task of occupying the Saltoro ridge was given to 26 Sector, commanded by Brigadier Vijay Channa, who was tasked with launching the operation between April 10 and 30. He chose April 13, supposedly an unlucky date, because it was the Vaisakhi day, when the Pakistanis would be least expecting the Indians to launch an operation.

15. Preparations for Operation Meghdoot started with the airlift of Indian Army soldiers by the Indian Air Force. The Air Force used Il-76, An-12 and An-32 to transport stores and troops as well to airdrop supplies to high altitude airfields. From there Mi-17, Mi-8 and own helicopters carried provisions and personnel to the east of the hitherto unscaled peaks.



The first phase of the operation began in March 1984 with the march on foot to the eastern base of the glacier. A full battalion of the Kumaon Regiment and units from the Ladakh Scouts, marched with full battle packs through an ice-bound Zoji La pass for days. The units under the command of Lieutenant-Colonel (later Brigadier) D. K. Khanna were moved on foot to avoid detection of large troop movements by Pakistani radars.

16. The first unit to establish position on the heights of the glacier was led by Major (later Lieutenant-Colonel) R. S. Sandhu. The next unit led by Captain Sanjay Kulkarni secured Bilafond La. The remaining forward deployment units then marched and climbed for four days under the command of Captain PV Yadav to secure the remaining heights of the Saltoro Ridge. By April 13, approximately 300 Indian troops were dug into the critical peaks and passes of the glacier. By the time Pakistan troops managed to get into the immediate area, they found that the Indian troops had controlled all three major mountain passes of Sia La, Bilafond La, and by 1987 Gyong La and all the commanding heights of the Saltoro Ridge west of the Siachen Glacier. Handicapped by the altitude and the limited time, Pakistan could only manage to control the Saltoro Ridge's western slopes and foothills despite the fact that Pakistan possessed more ground accessible routes to the area, unlike Indian access which was largely reliant on air drops for supplies due to the steeper eastern side of the glacier. In his memoirs, former Pakistani president, General Pervez Musharraf states that Pakistan lost 985.71 sq mi (2,553.0 km^2) of territory. Time magazine also states that the Indian advance captured 985.71 sq mi (2,553.0 km^2) of territory claimed by Pakistan. Camps were soon converted to permanent posts by both countries. The number of casualties on both sides during this particular operation has been large.

17. **Aftermath and Current Situation**. There are divergent views on the strategic value of the operation. Some view it as a futile capture of non-strategic land which antagonized relations between India and Pakistan. Others consider the operation to be a "daring" success by the Indian Military and ensured that the Indian military held tactical high ground on the strategic Saltoro Ridge just west of the glacier, albeit at a high cost. The Indian Army currently controls all of the 70 kilo metres (43 mi) long Siachen Glacier and all of its tributary glaciers, as well as the three main passes of the Saltoro Ridge immediately west of the glacier, Sia La, Bilafond La, and Gyong La, thus holding onto the tactical advantage of high ground. The operation and the continued cost of maintaining logistics to the area is a major drain on both militaries. Pakistan launched an all out assault in 1987 and again in 1989 to capture the ridge and passes held by India. The first assault was headed by then-Brigadier-General Pervez Musharraf (later President of Pakistan) and initially managed to capture a few high points before being pushed back. Later the same year, Pakistan lost at least one major Pakistani post, the "Quaid", which came under Indian control as Bana Post, in recognition of Bana Singh who launched a daring daylight attack, codenamed Operation Rajiv, after climbing 1,500 ft (460 m) of ice cliff. Bana Singh was awarded the Param Vir Chakra (PVC), the highest gallantry award of India for the assault that captured the post. Bana Post is the highest battlefield post in the world today at a height of 22,143 feet (6,749 m) above sea level. The second assault in 1989 was also unsuccessful as the ground positions did not change. The loss of most of the Siachen area and the subsequent unsuccessful military forays prompted Benazir Bhutto to taunt Zia ul Haq that he should wear a burqa as he had lost his manliness.

KARGIL CONFLICT- 1999

18. In 1998, India carried out nuclear tests and a few days later, Pakistan responded by more nuclear tests giving both countries nuclear deterrence capability, although India had exploded three hydrogen bombs which Pakistan lacks. Diplomatic tension ceased after the Lahore Summit was held in 1999.The sense of optimism was short-lived, however, since mid-1999 Pakistani paramilitary forces and Kashmiri insurgents captured deserted, but strategic, Himalayan heights in the Kargil district of India. These had been vacated by the Indian army during the onset of the inhospitable winter and were supposed to reoccupy in spring. Once the scale of the Pakistani incursion was realised, the Indian Army quickly mobilized about 200,000 troops and Operation Vijay was launched.

19. However, since the heights were under Pakistani control, India was in a clear strategic disadvantage. From their observation posts, the Pakistani forces had a clear line-of-sight to bring down indirect artillery fire on NH 1A, inflicting heavy casualties on the Indians. Thus, the Indian Army's first priority was to recapture peaks that were in the immediate vicinity of NH1A. This resulted in Indian troops first targeting theTiger Hill and Tololing complex in Dras.

20. **Battle of Tololing**. The Battle of Tololing, was one of the pivotal battles in the kargil war between Indian Armed forces and troops from Northern Light Infantry who were aided by other Pakistan irregulars in 1999. Tololing is a dominating feature overlooking Srinagar-Leh (NH1D) and was vital link. The terrain was such that frontal attacks had to be launched which resulted in heavy causalities. The three week assault finally culminated with India taking control of the peak and changing the course of the war. 23 Indian soldiers were killed in the final assault, resulting in one of the costliest battle of the entire war. Other assaults, slowly tilted the combat in India's favour. Never the less, some of the posts put up stiff resistance, including Tiger Hill (Point5140) that fell only later in the war.

21. The Indian Army mounted some direct frontal ground assaults which were slow and took a heavy toll given the steep ascent that had to be made on peaks as high as 18,000 feet (5,500m). Two months into the conflict, Indian troops had slowly retaken most of the ridges they had lost; according to official count, an estimated 75%–80% of the intruded area and nearly all high ground was back under Indian control. On 4 July 1999, Pakistan's Prime Minister Sharif agreed to withdraw Pakistani troops under US pressure and the fighting came to a gradual halt, but some Pakistani forces remained in positions on the Indian side of the LOC.

22. The Indian Army launched its final attacks in the last week of July; as soon as the Drass sub sector had been cleared of Pakistani forces, the fighting ceased on 26 July. 26 July has since been marked as 'Kargil Vijay Diwas' (Kargil Victory Day) in India. By the end of the war,India had resumed control of all territory south and east of the Line of Control, as was established in July 1972 as per the Shimla Accord.

CONCLUSION

23. Wars with Pakistan has been a regular affair in the long history of both countries along with conflicts with china. This is a compulsive and existential necessity for the Pakistani State controlled by their military. The sacrifices made by the Indian Army to safeguard the sovereignty and integrity of the nation are great, for which the whole nation is proud of its achievements.

CHAPTER IV : WAR MOVIES

1. **Introduction**. Battles are fought in the wilderness and away from limelight, however ferocious and destructive they may be. Historians have always tried to piece together those little but significant actions by individuals and groups bringing out their valour and courage for the consumption of future generations. Here we will see three visual documentaries on Indo – Pak wars of 1965, 1971 and 1999 to gain further insight on the subject.

Documentary on Indo – Pak War 1965

2. Screening of documentary on Indo – Pak war 1965.

Documentary on Indo – Pak War 1971

3. Screening of documentary on Indo – Pak war 1971.

Documentary on Kargil Conflict 1999

4. Screening of documentary on Indo – Pak Kargil Conflict, 1999.

CONCLUSION

5. The study of the Indo-Pak War brings out the sacrifices made by the Armed Forces of India. It is heartening to see the role of Armed Forces in maintaining the sovereignty and integrity of our nation. One must salute the war heroes and all those who have laid down their lives for the motherland.

SUMMARY

1. Field Marshal KM Cariappa, OBE was the first native Indian Chief of Army Staff of the Indian Army. He is only among three Indian Army officers to hold the highest rank of Field Marshal. He was appointed as the Commander-in-Chief of the Indian Military in 1949, received the rank of Field Marshal On 14th January 1986 at the age of 87.

2. The Param Vir Chakra (PVC) is India's highest military decoration award for highest degree of valour or self-sacrifice in the presence of enemy. The PVC was established on 26 January 1950 by the President of India. The medal was designed by Mrs Savitri Khanolkar.

3. CHM Piru Singh Shekhawat, PVC on 17 July 1948, Company Havildar Major Singh was posthumously was awarded the India's highest military decoration, the Param Vir Chakra..

4. Maj Shaitan Singh, PVC was awarded ParamVir Chakra, the highest wartime gallantry medal, posthumously, for his outstanding leadership during 'Battle of Rejang La'.

5. Captain Vikram Batra, PVC was posthumously awarded with the ParamVir Chakra for his actions during the 1999 Kargil Conflict. He led one of the toughest operations in mountain warfare in Indian history.

6. India has fought four wars with Pakistan so far, 1947-48 War,1965 War,1971 War and Kargil Conflict

7. **War of 1965.**

   (a) Pakistan launched Operation Gibraltar to support insurgency in J&K against Indian rule.
   (b) In retaliation India launched Operation Grand Slam in western sector against Pakistan.
   (c) The famous battles of 1965 war include Battle of Asal-Uttar, Battle of Dograi etc.
   (d) Battle of Chawinda was the largest tank battle in the history after World War II.

8. **War of 1971.**

   (a) In early1971,India declared its full-support for the Bengali rebels ,Known as Mukti Bahini.
   (b) Battle of Longewala was fought on 4 December 1971.
   (c) On16 December 1971, more than 90000 Pakistani soldiers surrendered at Dhaka.

9. **Operation Meghdoot, Siachen Glacier** The Siachen Glacier became a bone of contention following a vague demarcation of territories in the Karachi Agreement of 1949, the boundary demarcated as Actual Ground Position Line beyond point NJ 9842 and both India and Pakistan occupying positions on both sides.

10. Kargil Conflict 1999 was fought on the heights of Kargil and Drass in 1999. In mid-1999 Pakistani paramilitary forces and Kashmiri insurgents captured deserted, but strategic, Himalayan heights in the Kargil district of India. Indian forces painstakingly recaptured all posts one after another in a bloody conflict. Operation Vijay was declared success on 26 July1999.

CHAPTER I : INTRODUCTION TO COMMUNICATION AND LATEST TRENDS

1. Communication is the easy transmission of thoughts and ideas from one individual to another and vice-a-versa and reception and understanding of others ideas in the original form. Various forms of communications are sign language, voice, written script, line transmission, radio wave, space wave and highly complex digital communication. In modern battlefield, activities of the army have become very complex and require frequent communication between commanders and troops to achieve the desired results. Importance of communications is becoming a major ingredient of modern warfare.

2. **Line Communication** The invention of telephone by Graham Bell revolutionized the world of communications as individuals were able to speak directly to each other. This is the basic means of signal communications for a force which is static. A telephone is by far the best means of signal communication between individuals following are advantages and disadvantages given below: -

(a) **Advantages**.

(i) Reliable and practically free from electrical interference.
(ii) Relatively secure.
(iii) Number of circuits and message carrying capacity is more but limited only by availability of material and manpower.

(b) **Disadvantages**.

(iv) Vulnerable to physical interference and enemy interception along the entire length of the route.
(v) Takes time to construct.
(vi) Inflexible once it is laid.
(vii) Expensive in men and material

RADIO COMMUNICATION

3. **Radio Communication**. Radio is the technology of using radio waves to carry information such as sound, by systematically modulating properties of electromagnetic energy waves. The information in the waves can be extracted when radio waves strike an electrical conductor and transformed back into its original form. Radio communication requires the use of both transmitting and receiving equipment. The transmitting equipment, which includes a radio transmitter and transmitting antenna, is installed at the point from which messages are transmitted. The receiving equipment, which includes a radio receiver and receiving antenna, is installed at the point at which messages are received

4. **Wave**. A wave can be described as a disturbance that travels through a medium from one location to another location. Types of waves can broadly be divided in two parts :-

(b) **Mechanical Waves**. A mechanical wave is a wave that is an oscillation of matter, and therefore transfers energy through a medium.

(c) **Electromagnetic Waves**. Electromagnetic waves are waves which can travel through the vacuum of outer space.

(d) **Propagation of Wave**. The mode of propagation of electromagnetic waves (EMW) from transmitter to receiver depends upon the frequency employed. These can be of following types :-

(i) Sky Wave Propagation.
(ii) Space Wave Propagation
(iii) Ground Wave Propagation.
(iv) Tropospheric Scatter.

5. Radio Communication involves Net Radio and Radio Relay.

Net Radio

6. Net radio is the basic means of signal communication for any mobile force. Efficiency of net radio communication is appreciably affected by factors such as weather, terrain, power output of the set, state of training of operators and equipment maintenance. It provides facilities for the following :-

(a) **Radio Telephony** – Simple one way voice communication, depending on the type of equipment available.
(b) **Radio telegraphy** for transmission of message and key conversations.
(c) **Tele printers** over radio transmission.

7. **Advantages**.

(a) Vulnerable only at terminal and is therefore reasonably protected from enemy action except by a direct hit.
(b) Flexible hence can be rapidly re-arranged in the event of regrouping.
(c) Rapid in establishing communication.
(d) Works on the move although range obtained will be much less than when stationary.
(e) Economical in personnel and equipment.

8. **Disadvantages**.

(a) Inherently insecure and susceptible to enemy interception which necessitates the use of codes and ciphers with a consequent delay in clearing traffic and overall increase in operating personnel.
(b) Net radio being inherently insecure demands a considerable degree of security consciousness on the part of the users. This means adherence to standard procedure and security codes.

Radio Relay

9. Radio relay implies that a series of radio transmitters and receivers normally spaced between 20-35 Kms apart and are used to provide point signal communication.

10. **Advantages**.

(a) Replace line with considerable economy of manpower and stores.
(b) It can be operated over area where for reasons of ground or enemy activity use of line may not be possible.
(c) Provides greater flexibility than line.
(d) Quick to set up and move except in mountainous country.
(e) By its ability to employ multichannel equipment radio relay provides more tele-printer circuits over one link than can normally be provided over the average field cable. Thus it has much greater traffic handling capacity.

11. **Disadvantages**.

(a) Liable to interception and hence insecure. Has relatively greater security than net radio, depending upon the sitting and direction of the beams.
(b) Liable to interference from enemy jamming although not as much as in the case of net radio.
(c) Terrain between stations must be reasonably suitable to get a 'quasi optical path', this presents difficulty in sitting.
(d) Location of terminal and intermediate stations may not suit tactical layout and may, therefore, create additional protection requirements.
(e) It cannot work on the move.
(f) Slightly more expensive in men and material than in the case of net radio.
(g) Needs critical sitting.

CHARACTERISTICS OF WIRELESS TECHNOLOGY (MOBILE, WI-FI ETC.)

12. **Features of Wi-Fi Technology**. Wireless operations permit services, such as a long-range communications, which are impossible or impractical to implement with the use of wires. Information is transferred in this manner over both short and long distances.

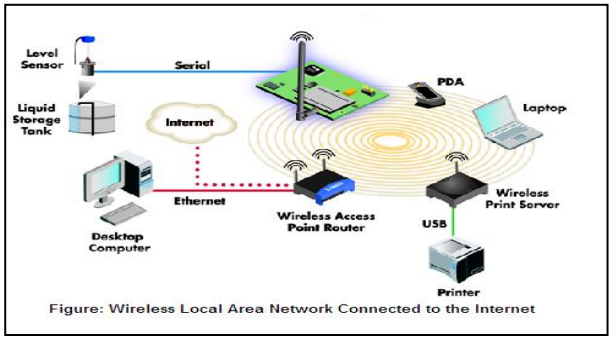


Figure: Wireless Local Area Network Connected to the Internet

13. The following list summarizes some of the benefits of a Wi-Fi network

(a) **Unmatched mobility and elasticity.**
Wi-Fi, is allowing the new intensity of connectivity without giving up functions. Wi-Fi introduced various types of utilities such music

streamers that transmit your music to speakers without any wire you can also play music from the remote computer or any other attached to the network. The most important now you can play online radio. Wifi technology system is rather remarkable, you can download songs, send an email and transfer files expediently at sky-scraping speed and you can move your computer easily because your WiFi network has no cable to disrupt your work so we can say that it is quite easy, helpful and most of all expedient.

(b) **Fortress Technology** Wi-Fi providing secure wireless solutions support the growth and release of a prototype mobile ad hoc wireless network for use in the wireless strategic skirmish.

(c) **Support an Entire Age Bracket.** Wi-Fi technology has several advantages, it supports an entire age bracket and create as connection between components on the same network and have the ability to transfer data between the devices and enable different kinds of devices such as game, MP3 player, PDA's and much more!

(d) **Convenient and Available Everywhere.** Wi-Fi is a convenient technology and where the network range station exists you are online during travel; you can equip with a Wi-Fi network and get connected. You will automatically connect to the internet if you are near a hotspot. These days WiFi exist everywhere with all its wonders.

(e) **Faster and Secure** With Wi-Fi, you can get a high speed of internet because it is very fast than DSL and Cable connection you can establish a Wi-Fi network in small space now you don't need any professional installation just connect to a power outlet with an Ethernet cord, and start browsing. Wi-Fi security system for Threats makes it more renewable and its tool protect your VPN and secure web page. You can easily configure the device to take better performance. The standard devices, embedded systems, and network security make it more powerful.

(f) **Wi-Fi with no limitation** You can use a "Wi-Fi" network with no limitation because it can connect you worldwide. You can easily cater to your requirements with Wi-Fi networking applications because the power consumption is not very high as compared to another bandwidth networks. The future of wireless internet network communications is bright.

(g) **Extension of Wi-Fi Technology** It is because of this wireless technology that so many other advancements could take place. Have you even thought of your TV to be supported by WI-FI? Well if you didn't, start thinking now. There are smart TV's in a market that connects to the internet. Having the internet on TV makes it possible to watch you tube videos, Net Flix and so much more. Read more about Wi-Fi TV technology on World Wide Web for more information

(h) **Cost Reduction**. As mentioned above, the absence of wires and cables brings down cost.

(i) **Flexibility**. Extended access, cost reductions, and mobility create opportunities for new applications as well as the possibility of creative new solutions for legacy applications.

TERMINAL EQUIPMENT AND LIMITATIONS OF WI-FI

14. **Mobile Telephones**. One of the best-known examples of wireless technology is the mobile phone, also known as a cellular phone, with more than 4.6 billion mobile cellular subscriptions worldwide as of the end of 2010.These wireless phones use radio waves from signal-transmission towers to enable their users to make phone calls from many locations worldwide.

15. **Wireless Data Communications**. Wireless data communications are an essential component of mobile computing. The various available technologies differ in local availability, coverage range and performance, and in some circumstances, users must be able to employ multiple connection types and switch between them.

16. Wi-Fi technology is not perfect and has many flaws that limit its use as follows:

(a) **Security**. Because wireless transmissions can pass through walls, security is an issue.

(b) **Wireless Reception**. Varies from area to area, even within your own apartment. It's not

always guaranteed that you'll have a connection to the Internet.

(c) **Interference**. Call quality is greatly influenced by the environment, is particularly sensitive to electromagnetic radiation generated by other household appliances.

(d) **Compatibility Issue**. Despite the global standardization, many devices from different manufacturers are not fully compatible, which in turn affects the speed of communication

CHARACTERISTICS OF WALKIE / TALKIE

17. A Walkie/Talkie (formally known as a hand held transceiver) are a hand-held, portable, two-way radio transceiver. Its development during the Second World War is credited to Donald L. Hings, radio engineer Alfred J.Gross, and engineering teams at Motorola. Where a phone's ear piece is only loud enough to be heard by the user, a walkie-talkie's built-in speaker can be heard by the user and those in the user's immediate vicinity. Hand-held transceivers may be used to communicate between each other, or to vehicle-mounted or base station.

18. **Radio set GP338 Motorola.** Defence organizations use hand held radios for a variety of purposes. Radio Set Gp338 Motorola can communicate on a variety of bands and modulation schemes.

19. **Facilities / Features**

(a) **FACILITIES**.
- (i) It is portable and light in weight.
- (ii) Can be operated easily.
- (iii) It can be operated in VHF/UHF and 2 way simplex mode.
- (iv) 128 channel of this radio set can be preset into 8 zone.
- (v) Option of selective call facilities available.
- (vi) Call alert can be given to receiver station.
- (vii) Can select required zone.
- (viii) Start/stop facilities of scan operation available.
- (ix) Add/Delete from scan list facilities available.

(b) **Weight and Measure**. Weight and measure of this radio set is as follows:
- (i) Dimension with Nickel Metal-Hydride high capacity battery-137x57.5x37.5mm.
- (ii) Weight with Nickel Metal-Hydride high capacity battery-420gm.

(c) **Frequency Range**. Frequency of this radio set is as under:-
- (i) 136 MHz to 174 MHz on VHF mode.
- (ii) 403 MHz to 470 MHz on UHF mode.

(d) **Communication Range**. Communication range of this radio set is 4 to 5 Km and 20 to 40 Km with repeater.

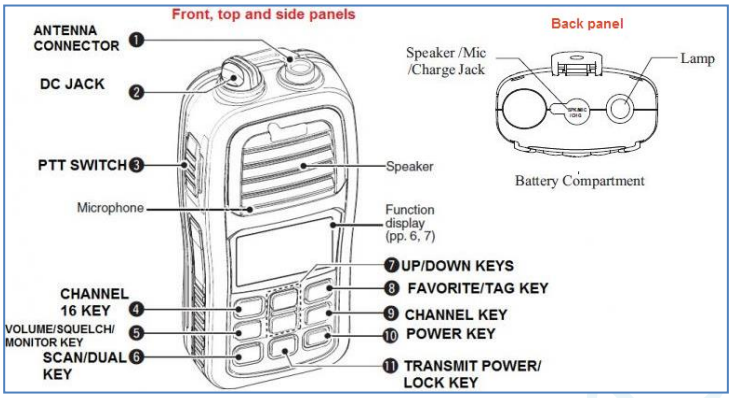
(e) **Power Supply**. Power supply can be provided to this radio set by the high capacity 7.2 volt batteries.

(f) **Battery Charging Time**. 1 hour for high capacity 7.2 volt batteries.
- (i) Power output (HF) 1 to 5W att.
- (ii) Power output (UHF) 1 to 4 Watt.

20. **WALKIE/TALKIE**. This radio set has been divided into four portions.

(a) **Top Panel**. Contains On/Off Volume Knob, Channel Selector Knob, Top Button and Antenna

(b) **Side Button**. Name and functions of the large control on side panel is Press to Talk Switch and Right Side Accessory Mount.



(c) **Front Panel**. There are a total of six buttons i.e. Exit Key, Up Key, and Menu Select Key. Front Panel Key Pad. This is an alphanumeric keypad. There are 10 keys on this pad from 0 to 9. One key star and one extract key. LCD Display. This is a 14-character LCD display window and 14 types of indicators are displayed.

(d) **Back Panel**. The battery is fixed on this back panel of radio.

LATEST TRENDS AND DEVELOPMENT IN COMMUNICATION

Tropo Scatter, Modem, Fax, and Telex

21. **Tropo scatter**. The lower layer of the atmosphere below 15 Km height is called tropospheric region. Communication carried out in this layer use the principle of tropo scatter. In this system micro waves are transmitted in the Ultra High Frequency (UHF) and Super High Frequency (SHF) band to achieve Radio Communication over the horizon covering a range between 70 Km to 1000 Km.

22. **MODEM (Modular-Demodulator)**. This device is used to convert computer generated output (Digital signals) that can be transmitted on a telephone line. Modems are required at both the sending and receiving computers.

23. **Fax**. This is common short form of FACSIMILE which is one of the memory type electronic mail and message systems with the following advantages:-

(a) Can transmit graphics as well as Alpha numeric information (letters and numbers).

(b) Reduce time and eliminates transmission error.

(c) Use any transmission medium eg. Telephone, line, micro radio wave.

24. **Telex**. This is the abbreviated form of TELE PRINTER EXCHANGE. As cable is used in this type of communication devices to connect two such instruments it restricts its range of operation.

(a) **Advantage**.

(i) Re-generative repeaters in a network can increase range; however voice signal cannot be re-generated.
(ii) Can be used over a telephone network.
(iii) Can receive messages when unattended.
(iv) Message is recorded in a printer form.

(b) **Disadvantages**.

(i) The Equipment is costlier than a telephone set.
(ii) Key in error due to the need for a human operator to send-receive message.
(iii) Lack of privacy since any one can read the printed output.

25. **Satellite**. Satellites are used for many purposes. Common types include military and civilian Earth observation satellites, communications satellites, navigation satellites, weather satellites, and space telescopes. Space stations and human spacecraft in orbit are also satellites. Satellite orbits vary greatly, depending on the purpose of the satellite, and are classified in a number of ways. Well-known (overlapping) classes include low Earth orbit, polar orbit, and geostationary orbit.

26. **Optical Fibre Communication Computer System**. Hollow tubes made of corning glass with an outer protective coating of rubber/plastic etc. are what constitute optical fibers. These fibers are very delicate and small in diameter.

(a) **Advantages**.

(i) It has wide band width carrying different types of information from low speed voice signal to high speed computer data.
(ii) Less power requirement.
(iii) Small cable size.
(iv) No electromagnetic interference.

(b) **Disadvantages**.

(i) Expensive in terms of equipment and manufacturing.
(ii) Requirement of experts to run the system

27. **Computer System**. Strictly speaking a computer is any calculating device. The name is derived from a Latin word “Computer” meaning to reckon or compute. However, the term computer has come to mean a special type of calculating machine having certain characteristics.

28. **Internet**. It provides an instant, trouble free and cheap means of communications. Internet is therefore a collection of individual data networks connected together in such a way that data can be exchanged back and forth between networks widely separated.. Electronic Mail, Web- Browsing and Voice Mail are the main facilities of internet.

29. **Cell Phone**. Cellular radio network was first introduced in 1980. It provides a mobile subscriber access to the global telephone network. It is a rapidly expanding technology with high rates of obsolescence.

30. **Multimedia**. It is a computer technology that displays information using a combination of full motion video animation, sound graphics and text with high degree of user interaction.

31. **Video-Conferencing Systems**. These provide the full benefits of face to face communication with sound, graphics and simultaneous transmission of data. The system enables people widely separated geographically to inter- act without having to meet at one place.

Videophone. It is a system that enables us to transmit an image via digital tele network, making visual contact has been made possible over great distances, apart from transferring speech. Facilities provided by videophone are:

(a) Can transmit speech as well as colour video.
(b) Conduct of video conferences.

(c) Called subscriber is seen on the monitor.
(d) High quality of voice.
(e) Speed of sending/ receiving can be adjusted by the user.
(f) Map over-lays can be transmitted.

Information Technology

32. Information Technology or IT for short, refers to the creation, gathering, processing, storage, presentation and dissemination of information, and also the processes and devices that enable all this to be done. IT stands firmly on the hardware and software of a computer and the telecommunications infrastructure. What has made the big difference in recent years is not the fact that individual computers have dramatically improved in their capabilities, but that all those information islands are being connected by digital highways made possible through the use of the telecommunications infrastructure by the computers, which, largely explains why the internet and the WWW have begun to play such a significant role in our use of computers.

CONCLUSION

33. Today the technology has advanced in all spheres of life. Even the defence forces are well poised to exploit the state-of-art modern communication techniques for meeting the requirements of the Indian Army in the 21st century. Some of the areas where the army is already in the process of exploiting are the Cellular Radio (both GSM & CDMA), WLL, mobile trunked radio, mobile satellite systems, OFC and so on. Therefore, it is very important to be well versed with the latest trends in information technology to gain maximum advantage from the same

Indian Navy Summit conducted by Video Conferencing system

CHAPTER II : BASIC RADIO TELEPHONY (RT) PROCEDURE

Introduction

1. The procedure is laid out to communicate on the Radio so as to make the conversation secure and successful, which is referred to as "Radio Telephony". This procedure is very important to avoid utter confusion over radio and is generally used by defence forces, air traffic controllers, maritime operators and amateur radio operators. Various advantages/disadvantages of RT procedure and radio communications are as under:-

(a) **Advantages**.
  (i) Easy to establish.
  (ii) Flexible.
  (iii) Transmissions to more than one station.

(b) **Disadvantages**.
  (i) Easier to intercept.
  (ii) Liable to atmospheric interference and interference from other stations.
  (iii) Liable to be jammed.
  (iv) Skilled operators required.

2. **Need for Standard Procedure**. Standard procedure in RT needed to attain speed, uniformity, security and prevents misunderstanding & confusion by use of code signs, link signs etc. which hides identity of an operator and that of a unit.

3. **Principles of Radio Telephony Procedure**. BASS defines the Principles of RT procedure.

(a) B – Brevity.
(b) A – Accuracy.
(c) S – Security.
(d) S – Speed.

4. **Types of Radio Telephony Communication**.

(c) **RT Conversation**. .This is normal conversation between radio operators, which is not registered.

(d) **Unregistered (UR) Message**. The only record taken will be in radio operator's logs of the sender and receiver.

(e) **Formal Message**. It is written down and signed by the originator will be written on a message form (IAFU-4009).

5. **Definitions**

(a) **Radio Net**. Stations working on same frequency in order to communicate with each other comprise a Radio Net.

(b) **Control Station**. Station serving as the senior HQ in the Radio Net. It is responsible for establishment of communications and maintains radio discipline on the net.

(c) **Link Sign**. It is secret group of letters or combination of letters and figures, allotted to a station on radio net, for concealing the identity of the communicating station. Link signs are changed daily or even earlier if required.

(d) **Code Sign**. It is three-letter group allotted to HQ/formation or unit to conceal their identity. These are changed daily.

(e) **Long Message**. Message that lasts for more than half a minute generally consists of more than thirty groups.

(f) **Short Message**. A short message lasts for half a minute or less.

(g) **Phonetic Alphabet**. Alpha, Bravo, Charlie.

(h) **Standard Phrases**. Use of standard procedure ensures that exact meaning of a sender is conveyed to the receiver in minimum time.

(i) **Code Word**. A code word is a single word used to provide security cover for reference to a classified matter.

(j) **Nicknames**. A nick name consists of two separate words that do not bear any relationship to each other i.e. PAHAD BANDAR. Nick names have very little security value and are used for convenience.

6. **Radio Telephony Procedure**. Standard phrases used in RT procedure are as under:-

(a) **Over**. My transmission has ended and I expect to hear a further transmission from you on this subject. Other stations will not transmit.

(b) **Out**. My transmission has ended and I do not expect you to make a further transmission on the subject. Other stations may transmit.

(c) **Wait Out**. You have finished for the time being and will call you later. Other stations may transmit.

(d) **Wait**. Pause for a few seconds follows. Other stations will not transmit.

(e) **Out to You**. I have finished with you and am about to call another station. No reply is expected from you. Other stations will not transmit.

(f) **Roger**. Message received and understood.

(g) **Wilco**. Message received, understood and will be complied with.

7. **Types of Calls** Calls can be categorised as under:-

(a) **Single Call**. A call when only one station on a net is addressed by anyone station of the net.

(b) **Multiple Calls**. A call when two or more but not all stations on the net are addressed. The pro word “and” will be inserted between the last two call signs e.g. `A1 for A2 and A3'.

(c) **Net Call**. A call used to address all stations on a net e.g. “All stations Alpha”.

(d) **Net Call with Exceptions**. A call used to address all stations on the net except a few. Here a net call is made and stations not called are specified e.g. “all stations Alpha except ABC 3”.

8. **Establishment of Communication**. Preliminary instructions are issued by Control. They are not sent by radio unless in dire emergency. On establishment of communications, signal strength will always be checked and confirmed. Link signs will not be abbreviated in bad weather conditions. If a station has not come up during establishment of communication but comes up little later, communication will be again established. Signal communication will always be established in the following situations: -

(a) After change of frequency.
(b) Bad weather.
(c) After move.
(d) After lifting of radio silence.
(e) After change of link sign.

9. **Documentation**. Documentation forms a very important aspect of RT procedure. All events need to be documented for future reference in case of a query.

10. **Rules on Security**. Security over radio is an important issue in defence forces hence there is a need to adopt these procedures and follow certain golden rules.

(a) Think before you speak.
(b) Use correct procedure.
(c) Avoid use of jargon.
(d) Use official codes only.
(e) Substitute clear names by code signs.
(f) Be brief.

PRACTICE

11. The cadets will be given adequate practice on RT procedure.

CONCLUSION

12. Proper Radio Telephony procedure is essential to establish communication both during war and peace time. There are certain advantages and disadvantages of RT procedure. The messages can be intercepted by enemy and the complete information can be retrieved especially during field conditions. Considering the same one must follow all the rules of security while communicating.

SUMMARY

1. **Line.** This is the basic means of signal communications for a force which is static.

2. **Radio Communication.** Radio communication involves Net Radio and Radio Relay. Net radio is the basic means of signal communication for any mobile force.

3. **Radio Relay.** Radio relay implies that a series of radio transmitters and receivers normally spaced between 20-35 Km apart and are used to provide point signal.

4. **Wireless.** Wireless operations permit services, such as a long-range communications, that are impossible or impractical to implement with the use of wires.

5. **Mobile Telephones.** These wireless phones use radio waves from signal-transmission towers to enable their users to make phone calls from many locations worldwide.

6. **Wireless Data Communications.** Wireless data communications are an essential component of mobile computing. The various available technologies differ in local availability, coverage range and performance.

7. **Wi-Fi.** Wi-Fi is a wireless local area network that enables portable computing devices to connect easily to the Internet. Wi-Fi has become the de facto standard for access in private homes, within offices, and at public hotspots. Cellular data service offers coverage within a range of 10-15 miles from the nearest cell site.

8. A walkie-talkie is a hand-held, portable, two-way radio transceiver.

9. **Radio Telephony.** The procedure laid out to communicate on the Radio so as to make the conversation secure and successful, which is referred to as “Radio Telephony”.

10. **Principles of Radio Telephony Procedure**.
    (a) B – Bravity.
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    (c) S – Security.
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    (a) RT conversation.
    (b) Unregistered (UR) Message.
    (c) Formal Message.

12. **Types of Calls**.
    (a) Single Call.
    (b) Multiple Call.
    (c) Net Call.
    (d) Net Call with Exceptions.

13. Troposcatter is a system in which micro waves are transmitted in the UHF and SHF band to achieve radio communication over the horizon covering a range between 70 Km to 1000 Km.

14. Modem (modulator-demodulator) is a network hardware device that modulates one or more carrier wave signals to encode digital information for transmission and demodulates signals to decode the transmitted information.

15. A satellite is an artificial object which has been intentionally placed into orbit. Such object is sometimes called artificial satellite to distinguish them from natural satellites such as Earth’s Moon.

16. Satellites are used for a large number of purposes. Common types include military and civilian earth observation satellites, communications satellites, navigation satellites, weather satellites, and research satellites.

17. Multimedia is content that uses a combination of different content forms such as text, audio, images, animation, video and interactive content. Multimedia contrasts with media that use only rudimentary computer displays such as text-only or traditional forms of printed or hand-produced material.