	Index	Marks Allotted				Page. No
		Theory		Practical		
		B	C	B	C	
Part I	**Drill**	30	25	60	40	**2**
Part II	**Weapon Training**	35	30	25	20	**5**
Part III	**Miscellaneous**					
1	The NCC	5	-	-	-	9
2	National Integration & Awareness	30	30	-	-	12
3	Personality Development & Leadership	65	75	-	-	17
4	Disaster Management	15	20	-	-	27
5	Social Awareness & Community Development	30	35	-	-	32
6	Health & Hygiene	25	35	-	-	38
7	Adventure Training	15	20	-	-	45
8	Environment Awareness & Conservation	10	20	-	-	49
9	Obstacle Training	5	-	-	-	54
Part IV	**Special Subjects**					
1	Armed Forces	20	15	-	-	55
2	Map Reading	25	30	15	20	61
3	Field Craft and Battle Craft	25	30	15	20	69
4	Introduction to Infantry Weapons & Equipments	15	15	-	-	75
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6	Communications	10	-	10	-	82
	Grand Total	**375**	**400**	**125**	**100**	

Part I Drill

1. What are the aims of drill?

   The aims of drill are

   a) to inculcate a sense of discipline
   b) improve bearing
   c) smartness in appearance and turn out
   d) to create self confidence.
   e) to develop the quality of immediate and implicit obedience to orders.

2. Write the things to be followed prior to proceeding for drill?
   a) Dress should be washed and properly pressed
   b) All the buttons of dress should be stitched
   c) Dress should neither be loose nor tight
   d) Shoes should be polished and shoe laces tied properly
   e) Belt should be polished and its brass parts should be cleaned with brasso. Belt should not be too tight or loose
   f) Hair cut should be proper
   g) Shaving of beard prior to drill be done
   h) The cap should be put properly on head.

3. How many parts does a word of command consist of? What are they?
   The word of command is divided into two parts. They **are Cautionary** and **Executive**
4. Explain Savdhan
   a) Heels together forming 30 degree,
   b) Knees straight,
   c) Body erect,
   d) Chest lifted and curved,
   e) Shoulders square falling equally,
   f) Arms hanging straight down,
   g) Head erect, chin vertical, eyes straight to the front,
   h) Weight of the body resting equally on the heels and toes.
5. Write some word of commands
   a) Savdhan (attention),
   b) Vishram (stand at ease),
   c) Aram se (stand easy),
   d) Dahine/Bahe/Pichhe Mur (right/left about turn),
   e) Adha Dahine/Bahe/Pichhe Mur (inclining),
   f) Khuli line chal (open order march),
   g) Nikat line chal (closed order march),
   h) Dahine saj (right dress),
   i) Visarjan (dismiss),
   j) Line tor (fall out),
   k) Tez chal (quick march),
   l) Tham (halt),
   m) Dahine/Bahe ghoom (right/left wheel),
   n) Qadam Taal (mark time).

6. Difference between Visarjan and Line tor:
   Visarjan: Indicates end of the parade. For closing drill Salute is given if authorized officer is present in the parade**. Line tor:** Indicates break in the parade temporarily. For leaving the squad temporarily Salute is not given

7. Length of Pace and Time of marching

Sl.No	Movement	Length of pace in **inches**	Paces in a **minute**	Equivalent distance in **yards**
1	Slow time march	30	70	
2	Quick time march (Tej Chal)	30	120	100
3	Double time march	40	180	200

8. The number of steps to be taken per minute while on pilot duty is 70
9. Angle formed at the heels in Savdhan: 30 degrees.
10. Distance between the feet in Vishram--- 12 inches/foot
11. Generally, during march, on which feet any command is started: -Left
12. which area the different Salutes at the march: -Dahine salute -Bahe salute -Samne salute
13. What is **inflection**: -Inflection is the rise and fall of voice in word of command.
14. In Vishram left foot is taken 6" high.
15. Rank is a straight line formed by a few persons standing side by side
16. File is a straight line formed by the persons behind the other covering the man in the front
17. Squad in Drill: The Rank and File together makes the squad.
18. The strength of Guard of honour for the President is 150 cadets stand in three rows.
19. General salute is given to Maj Gen & above.
20. The number of persons detailed for guard mounting in quarter guard is 2+6
21. While doing "khuli line chal" (Open Order March). The front rank shoots the right foot forward one full step and left foot one short step and lift right to bring the two feet together, arms to sides throughout. The rear rank conforms to similar movement to the rear.
22. While marching in Quick Time the word of command 'Tham' is given when left foot comes on the ground
23. The two type of drill are Open Drill and Close Drill
24. When the strength of cadets is more than nine ….3……..files will be made.
25. Visarjan denotes that parade is completely terminated
26. A drill movements commence after getting to Savdhan
27. When there is no need to fall in again and the officer is available in the parade, the command given to disburse the parade is Visarjan
28. Write some bad habits of Drill
    a) Rolling of eyes
    b) hopping and jumping
    c) dragging of foot
    d) clicking the heel
    e) …..
29. The distance between two ranks in 'Khuli Line Chal' is 75 inches.
30. In Kuli Line Chal the distance between front ranks to the back rank is 150 inches.
31. Proper execution of any command depends on tone and pitch of voice.
32. Loudness of command is directly proportional to number of men and distance
33. Distinctness depends on proper use of tongue, lips and teeth.
34. In Vishram foot is raised 6 inches to the ground and carried 12 inches to the left.
35. 'Dahine Mur' and 'Pichhe Mur involves turning 90^0 and 180^0 towards right

36. National Salute is given to President of India and Maj Gen is authorized General Salute while all other dignitaries are given Salami Shastr salute.
37. Salami sastra is to be given to the rank of Major and above.
38. Bagal Shastra is given to officers of the rank Captain and below
39. To inspect the squad for Squad drill, it is necessary for the squad to be in Open order.
40. In numbering, the centre and rear rank take the number of front rank.
41. The volume of command is directly proportional to the number of cadets (strength of cadets)
42. Maximum number of side pace can be taken at a time is 12.
43. In inclining the squad turns through 45 degrees.
44. Pace of Tej Chal per minute for NCC girl cadet is 110.
45. In slow march ("Dheere Chal") hand swinging is not done.
46. Ceremonial parade is 150 cadets of cadet training
47. Adha Dahine or Adha Baye mur is through 45 degree only
48. The word of command halt is given when the left foot reaches the ground
49. Why the open order march is done and how?
    Open order march is done to inspect the squad and for squad drill. It is necessary for the squad to be in open order that the front rank and rear rank take half step forward and backward respectively while the whole the centre rank still.
50. Characteristics of Word of Command
    a) Word of command should be given loud and clear so that the squad can hear clearly.
    b) Word of Command is given in two parts, cautionary and executive
    c) Cautionary word of command should be given in loud voice and the executive word of command should be louder and sharper.
    d) One who gives word of command should be in Savdhan position.
51. Dignitaries who can be presented with Guard of Honour
    a) President, Vice President and Prime Minister
    b) The Governors of the State and Lt Governor
    c) The Defence Minister/Minister in the Ministry of Defence.
52. Sequence in which saluting and handing over a message is done:-
    a) Halt
    b) Salute
    c) Take one step forward
    d) Take out the message with the right hand.
    e) Hand over the message.
    f) Take one step behind

Part II

Weapon Training

I. Characteristics of .22 Rifle, Stripping, Assembling, Care and Cleaning and Sight Setting

1. What are the major characteristics of Rif .22 No MK-II, MK IV and Deluxe BA, 7.62mm SLR, LMG

Sl.No	Details		Rifle .22 No II MK IV BA	Rifle .22 Deluxe BA	7.62mm SLR	LMG
1	Length		45”	**43”**	45”	
2	Weight		8 Lbs$10^{1}/_{2}$ OZ	**6 LBs 2 OZ**	9 lb (5.1 Kg with filled magazine)	
3	Magzine Capacity		10 Rounds	**05 Rounds**	20 Rounds	
4	Muzzle Velocity		2700 per sec	**2700 per sec**	815 m/2700ft	
5	Grooves in the barrel		06	**06**	06	
6	Effective Range		25 yds	**25 yds**	275 m	500 Yds
7	Max Range		1700 yds at 33 angle	**1700 yds at 33 angle**		
8	Calibre		0 .22	**0.22**	7.62 mm	
9	Ammunition		0.22	**0.22**		
10	Rate of fire	Normal	05 Rds pm	**05 Rds pm**	28 Rds Pm (1Magazine)	
		Rapid	10-15 Rds pm	**10-15 Rds pm**	20 Rds pm	3 Magzine/minute

2. Explain briefly the sequence of Firing a shot

Accuracy of aim is essential for the successful shot. The good shot can only be obtained with consistency of aim. The main points to be remembered while firing –“HAT”. “H” stands for the holding of rifle, “A” for aiming and “T” for the correct trigger operation. The weapon must be placed properly and hold it firmly and so that one can overcome moments or vibrations of the weapon. The correct aiming is another important point to remember. Focus the target so that a clear picture is formed on the retina of the eye and get the true centre of the target. Close the left eye and focus the foresight. See the foresight through the back sight “U”. The foresight should be seen right in the centre of the “U”. The tip of foresight must be aligned in the centre and in level with the shoulder of the “U”. The required elevation is adjusted by your position. The trigger operation is very important for the accurate shooting without disturbing the aim. To achieve this perfect co-ordination between eye, brain and operation of the forefinger on the trigger is required.

3. The three cardinal principles of firing / Essentials of a good firer.
   HAT – Holding, Aiming, Trigger Operation
   Holding – Hold the weapon correct & tight
   Aiming – Take the aim on the target using foresight and back sight
   Trigger Operation – Operate the trigger correctly without moving the weapon.

4. What is Mean Point of Impact (**MP**I)?
   The central point of the area covered by the group is called the mean point of impact of the group.
5. Why are groups formed when bullets are fired instead of all bullets passing through the same hole?
   a) Due to the fault of the firer
   b) Variation in the temperature of the barrel
   c) Wind effect and the weather condition
   d) Variation in Ammunition.
6. What are the points to be seen in lying position for firing?
   a) Right to left hand, elbow, rifle and target in the line.
   b) Flash Hider should not touch the ground.
   c) Body position should be slightly at an angle to the target
   d) Legs should be as par open as body comfort and inner heel touching the ground.

7. Write the sequences of stripping and assembling of LMG?
   Stripping Sequence: (a) Piston group (b) Barrel group (c) Butt group (d) Body group (e) Bipod group
   Assembling Sequence: (a) Bipod group (b) Body group (c) Butt group (d) Barrel group (e) Piston group
8. What are the various positions to be taken while firing?
   (a) The lying position
   (b) The sitting position
   (c) The kneeling position
   (d) The standing position
9. What is Group? What are the methods of finding MPI?
   The pattern formed by three or more than three bullets fired by a single firer, at a single target, with same hold and aim under same weather conditions and with same arm is called a Group.
   Methods: (a) Graphical Method (b) Axis of departure method (c) Calculation method

10. Define the terms?
. (a) **Trajectory**. Parabolic path traced by the bullet during its flight.
   (b) **Line of Sight**. Imaginary line formed between eye of the firer and point of aim through the sight.
   (c) **Angle of descent**. Angle formed between trajectory and the line of sight before bullet hits target.
   (d) **First Catch**. The point where bullet hits the target.
   (e) **First Graze**. The point where bullet hits the ground passing through the target.

11. Expand the following
    (a) **MPI** - Mean Point of Impact
    (b) **SMC** – Sten Machine Carbine
    (c) **LMG** - Light Machine Gun
    (d) **SLR** – Self Loading Rifle
    (e) **DP** – Drill Practice
    (f) **CQB** – Close Quarter Battle
    (g) **TOET** – Test of Elementary Training.

12. What materials are used for cleaning .22 Rifle?
    (a) Pull through
    (b) Wire gauge (2.5" x 1.5")
    (c) Oil
    (d) Flannel for cleaning (4" x 2") and for oiling (4" x 1½")

13. Write any 10 parts common to all weapons?
    (a) Barrel (b) Fore sight knobs (c) Bayonet (d) Magazine (e) Trigger and Trigger guard (f) Back sight (g) Butt (h) Piston grip (j) Cocking handle (k) Safety catch/change lever

14. The Basic weapon used by NCC Cadets for firing is .22 Rifle.

15. Rifle 7.62 mm is a ……gas……..operated weapon.

16. 7.62 mm SLR is a flat trajectory weapon.

17. What are the contents of a cleaning box of rifle 7.62mm SLR?
    (a) Combination tool
    (b) Gas regulator key
    (c) Screw driver
    (d) Chamber cleaning brush
    (e) Chindi
    (f) Graphite grease tube.
18. What are the points to be borne in mind while assembling the bolt of .22 rifle?
    a) Bolt head to be fully tight
    b) Bolt head and guide rib as well as cocking piece and steel ling to be in a line
    c) Number of the bolt should tally that of the rifle
    d) Safety catch should be applied.
19. What are the five pats of LMG?
    a) Piston Group
    b) Barrel Group
    c) Butt Group
    d) Body Group
    e) Bipod Group
20. Define a Group?
    The pattern formed by three or more bullets fired by a single firer, at a single target with same hold and aim under same weather conditions and with the same aim is called Group.
21. Write down the types of target generally used by girl cadet?
    a) For application firing 1'X1' tgt is used
    b) For grouping 1'X1' tgt with white patch in the centre of the bull is used.

22. OX52 oil is used to for lubrication of 7.62 mm rifle at temperatures above 4 degree centigrade.

23. 7.62 mm rifle is a Bolt Action Rifle

24. Combination tool is used to adjust the gas regulator in LMG.

25. The weight of magazine alone is 9 Ozs

26. 1'X1' target is used for rapid firing / Group firing

27. Effective range of 5.56mm INSAS rifle is …….mtr

28. Graphical method is one of the method s to find MPI.

29. The barrel of .22 Rifle should be cleaned with ……

30. The cocking of the LMG is on the right side of the weapon.

31. Miss fire is caused on pressing the trigger when the bolt lever is not fully forward.

32. The innermost circle of a target is called a magpie.

33. 7.62 mm SLR without Magazine weighs 4.4 Kgs. **(One Pound =0.453592 Kg)**

34. The amount of elevation needed to the weapon depends upon the range of target.

35. The parabolic path traced by a bullet during its flight is called trajectory.

Part III Miscellaneous

1 The NCC

1. The Motto of NCC is Unity and Discipline

2. Aims of the NCC

   The aims of NCC are mainly three fold:-

   (1) To develop following qualities in the cadets :-
   - (a) Development of Character.
   - (b) Comradeship.
   - (c) Discipline.
   - (d) Secular Outlook.
   - (e) Spirit of Adventure.
   - (e) Sportsmanship.
   - (f) Ideals of selfless service among the youth of the country.

   (2) To create a human resource of **Organised, Trained** and **Motivated** youth, to provide leadership in all walks of life and always be available for the service of the nation.

   (3) To provide a suitable environment to motivate the youth to take up a career in the Armed Forces.

3. Objective of the NCC

   Objectives of the NCC are:-

   (a) Reach out to the maximum youths through various institutions.
   (b) Make NCC as an important part of the society.
   (c) Teach positive thinking and attitude to the youths.
   (d) Become a main source of National Integration by making NCC as one of the greatest cohesive force of our nation irrespective of any caste, creed, religion or region.
   (e) Mould the youth of the entire country into a united, secular and disciplined citizens of the nation.
   (f) Provide an ideal platform for the youth to showcase their potential in nation building.
   (g) Instill spirit of secularism and united India by organizing National Integration Camps all over the country.
   (h) Reach out to the youths of friendly foreign countries through Youth Exchange Programmes (YEP).

4. NCC Staff

   NCC is staffed by the following:-
   - (a) Regular officers drawn from the three services
   - (b) Whole Time Lady Officers (**WTLO**), who are from NCC.
   - (c) Associate NCC officers (**ANO**), who are professors and teachers.
   - (d) Girl Cadet Instructors (**GCI**), who are from NCC.
   - (e) Permanent Instructional (**PI**) Staff from army, navy and air force.
   - (f) Civilian Gliding Instructors.
   - (g) Civilian Staff.

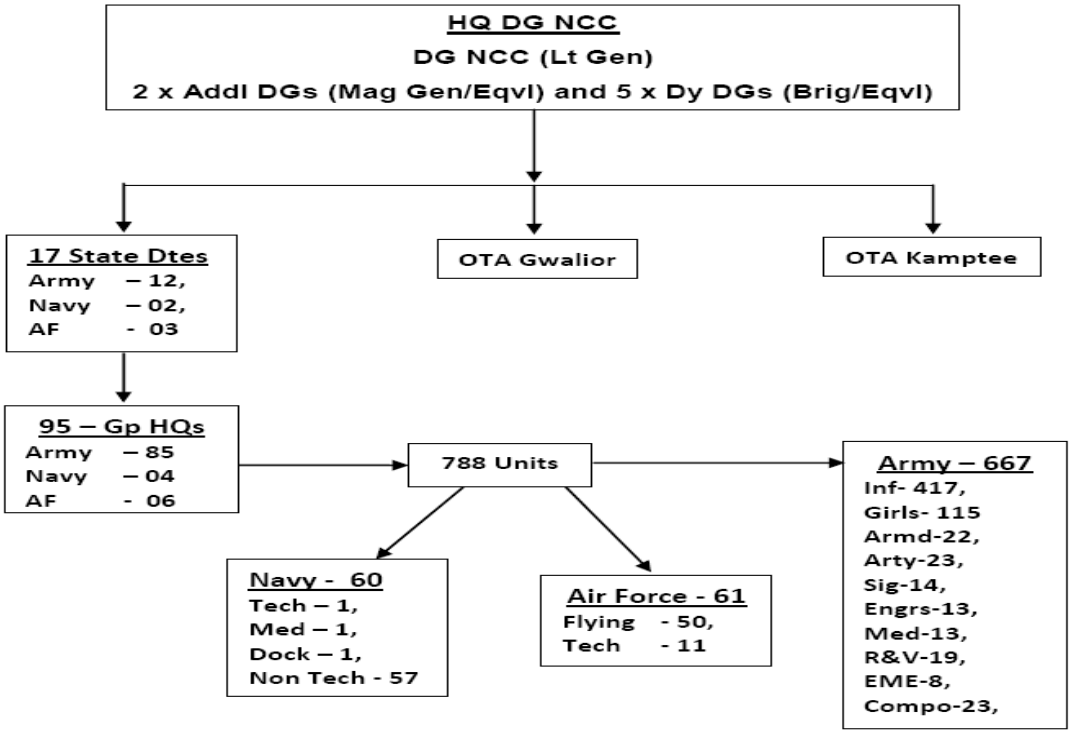
5. Training in NCC

   Training activities of NCC can be broadly classified as under:-

(a) Institutional Training.
(b) Camp Training.
(c) Attachment Training.
(d) Naval Wing Activities
(e) Air Wing Activities.
(f) Remount & Vetinary Activities.

6. Types of Camps
   (a) Annual Training Camps (**ATC**).
   (b) Centrally Organised Camps (**COC**).
      (i) Leadership Camps (Basic and Advance).
      (ii) Thal Sainik Camp (**TSC**).
      (iii) Vayu Sainik Camp (**VSC**).
      (iv) Nau Sainik Camps (**NSC**).
      (v) Rock Climbing Camp.
      (vi) National Integration Camps (**NIC**).
      (vii) RDC and PM's Rally.
   (c) Adventure Training and Sports.
   (d)Youth Exchange Programme (**YEP**).

7. Organization of NCC



8. There are Seventeen NCC Directorates in India
9. There are Ninety five NCC Group Head Quarters in India.
10. There are Five NCC Group Headquarters in Kerala. The five Group Head Quarters are
    1) Thiruvananthapuram Group
    2) Kollam Group
    3) Kottayam Group
    4) Ernakuklam Group
    5) Kozhikode Group
11. Who is the present Defence Minister?
12. Who is the present Director General of NCC?
13. Who is the present Additional Director General of Kerala and Lakshadweep Directorate?
14. Who is the present Group Commander of NCC Gp HQ, Ernakulam?

2 National Integration & Awareness

I. Religion, Culture, Traditions and Customs of India

1. Main Religions of India

   India is a multi religious democratic country. There are six major religions in India. They are Hindus: 83.5 %, Muslims: 10.7 %, Christians: 2.44 %, Sikhs: 1.79 %, Buddhist: 0.74%, Janis: 0.46%, others 0.37 %.

   a) **Hinduism**: The source of Hindu thought is the Vedas.
   b) **Islam**: Islam means "Submission "or resignation to Allah (God).
   c) **Christianity**: The massage of Jesus Christ is given in the Holy Bible
   d) **Jainism**: Jainism derives its name from Jaina (the Conqueror).
   e) **Buddhism**: Buddhism was founded by Gautam Buddha
   f) **Sikhism**: God the original Guru imparted his message to his disciple Nanak, who having absorbed the divine spirit became the Guru himself. The message of Guru Nanak is known as Gurmat. The central religious text of Sikhism is **Guru Granth Sahib**

2. Various races arrived in India
   a) Negrito Race
   b) Proto-Australiod Race.
   c) Dravidian Race
   d) Aryan Race.
   e) Muslim Race
   f) The British.

II. National Integration: Importance & Necessity

3. The motto of National Integration is Unity in Diversity
4. What is National Integration:

   National integration means a feeling of togetherness and unity among the people of a country. It also means an atmosphere in which all citizens, irrespective of their caste, religion and region live together peacefully. It refers to integration in all respects, social political, economic and above all emotional. In an integrated country people share common goals. They all work together and co-operate with each other for the prosperity of the nation.

5. Necessity of National Integration
   a) Maintenance of sovereignty and territorial integrity of the nation.
   b) Maintenance of peace and harmony.
   c) Growth and development of the nation.
   d) Eradication of poverty and illiteracy.
   e) Internal security and law and order.
   f) Culture and religious development.
   g) Economic and industrial growth.
   h) Attract foreign investment and increase import and export.
   i) Exchange of technological know-how and culture.

j) Dignity and self respect as a nation.
k) Welfare and well-being of the people

III. Freedom Struggle and Nationalist Movement in India

6. Indian Mutiny of 1857 & the end of East India Company
7. **Raja Rammohan Roy**: - (1772-1833) founded the Brahmo Samaj in 1828 which aimed at purging the society of all its evil practices. He worked for eradicating evils like sati, child marriage and purdah system, championed widow marriage and women's education and favoured English system of education in India. It was through his effort that sati was declared a legal offence by the British
8. **Swami Vivekananda** :- (1863-1902) the disciple of Ramakrishna Paramahamsa, established the Ramkrishna Mission at Belur in 1897. He championed the supremacy of Vedantic philosophy. His talk at the Chicago (USA) Conference of World Religions in 1893 made the westerners realize the greatness of Hinduism for the first time.

9. Nationalist Movement in India
   a) Formation Of **Indian National Congress** (INC)
      The Indian National Congress was founded with the help of A.O. Hume, a retired British official in 1885
   b) Jalianwala Bagh Massacre.
   c) The Non-Cooperation Movement
   d) Simon Commission
      Lala Lajpat Rai is called as Sher-e-Punjab (Lion of Punjab)
   e) Civil Disobedience Movement
   f) Quit India Movement :
      In August 1942, Gandhiji started the 'Quit India Movement' .
      Gandhiji was born in the year 1869, 2nd October
      Netaji Subhash Chandra Bose organized the Indian National Army **(INA**) to overthrow the British from India. “Give me blood and I shall give you freedom" - was one of the most popular statements made by him.
   g) Partition of India and Pakistan

IV. National INTERESTS, OBJECTIVES, THREATS AND OPPORTUNITIES

10. Explain briefly the four National Interests
    a) **Sovereignty**. Foremost interest of the nation is to be autonomous and remain independent.
    b) **Integrity**. The nation should be full, indivisible and have a well-defined territory.
    c) **Unity**. The nation should be a secular union of states with political power belonging to a central confederate authority, with united and undivided goals without factional, sectarian or fanatical prejudices. It should be tolerant towards caste, colour, creed, religion and language of each other.
    d) **Security**. The nation must ensure safety, territorial integrity and protection of the state against external threat or subversion.

11. National Objectives.-There are 16 articles of the constitution from 36-51 that deal with the Directive Principles of State Policy. Important ones out of these are as follows:-
    a) To ensure and protect a social order which stands for the welfare of the people.
    b) Separation of judiciary from the executive.
    c) Protection of national monuments.
    d) Protection and improvement in environment, forests and wild life.
    e) Organise agriculture and animal husbandry on modern and scientific lines.
    f) Improvement of public health.
    g) Prohibition of intoxicating drinks and drugs.
    h) Promotion of educational and economic interests of weaker sections of the people.
    i) To have uniform code of law irrespective of caste, creed, colour or religion.
    j) Participation of workers and labourers in labour law.
    k) Promotion of cottage industries.
    l) Provision of maternity relief.
    m) Education to all.
    n) Equal justice to all.
    o) Equal pay for equal work for both men and women.
    p) Adequate means of livelihood to all citizens.

    Apart from the above Directive Principles, current objectives of our nation are as follows:-
    (a) Self sufficiency in nuclear- power.
    (b) Availability of reliable power supply for farming and industries.
    (c) Production of goods for world markets.
    (d) Balancing growth in both public and private sector.
    (e) Modernization of villages, linking with roads and provision of electricity to all villages.

V. Problems/ Challenges of National Integration

12. Major Problems of National Integration.
    a) Casteism
    b) **Communalism.**
    c) **Linguistic Fanaticism.**
    d) **Regionalism.**
    e) **Social Disparity.**
    f) **Economic Inequalities.**
13. Measures to achieve National Integration
    a) Education
    b) Religious Tolerance
    c) Linguistic Tolerance
    d) Use of Radio/TV
    e) Government Initiative

VI. Unity in Diversity

14. Importance and Fundamental of Unity

Importance of National Unity:-National unity is extremely essential for social peace and harmony. We can enjoy peace and security, if there is a mutual trust and goodwill among all the sects of people of the country. No progress can be made by the nation in any field if disruptive tendencies and divisive forces keep on destroying the very fabric of national unity.

Fundamentals of Unity

a) Language
b) Casteism
c) Education
d) Communalism
e) Regionalism.
l) .

VII. National Integration Council (NIC)

15. National integration Council was constituted in 1961
16. A. O Hume was the founder of Indian National Congress in the year 1885
17. In April 2010 the National Integration Commission was again reconstructed with ……147……. members. These include the following

(a) **Chairman** - Prime Minister
(b) **Members.**

(i) Union Ministers	-	14
(iii) Chief Ministers (States / UTs)	-	30
(iii) Leaders of Political / Regional Parties	-	13
(iv) National Commissions	-	05
(v) Media Persons	-	19
(vi) Representatives of Business	-	10
(vii) Representatives of Labours	-	02
(viii) Women Representatives	-	08
(ix) Eminent Public Representatives	-	45

18. There are ……..08…….woman representatives in the National Integration Commission.

19. Role and Function of National Integration Council

VIII. Slogans for National Integraion.

IX. Contribution of Youth in Nation Building.

20. What are the aims of the NCC in conducting NIC's
    (a) National Integration is necessary for the progress of any Nation
    (b) To promote a feeling of a National Harmony, Co-operation and brotherhood among citizens
    (c) To nullify the rift that has come in between various section of the society
    (d) To discourage anti social elements and terrorist groups operating in the country
    (e) To bridge the gap between people from the different regions and religions.
    (f) To project a stronger and better image of Indian across the globe

21. What are the objectives of New NCC Training Philosophy issued in 2012?
    (a) Train volunteer youth to become confident, committed and competent leaders in all walks of life
    (b) Enhance awareness level of cadets to become empowered and responsible citizens of the country.
    (c) Provide opportunities and encourage cadets to enrich their knowledge, develop communication skills and build a character.
    (d) Conduct social activities and community development programmes, to educate and make constructive contributions toward society.
    (e) Undertake adventure activities to hone leadership qualities and risk taking abilities.
    (f) Provide a platform to launch "Good –will Ambassadors" to project the image of the country overseas.
    (g) Conduct military training to develop awareness about Armed Forces, Leadership skills and military values and thus provide an environment to motivate cadets to join the Armed Force.

3 Personality Development & Leadership

I. Introduction to Personality Development

1. Various types of Skills
   (a)Literacy Skills
   (b)Language Skills
   (c) Functional Skills
   (d) Vocational Skills
   (e) Sports Skills
   (f) Cultural Skills
   (g) Life Skills

2. Ten Core Life Skills

   (a) Self Awareness
   (b) Empathy.
   (c) Critical Thinking
   (d) Creative Thinking.
   (e) Problem Solving Skills.
   (f) Decision Making.
   (g) Interpersonal Relationship.
   (h) Effective Communication.
   (j) Coping with Emotions.
   (k) Coping with Stress.

II. Factors Influencing Personality

3. Physical and social factors influencing personality

   a) Hereditary
   b) Self-Development
   c) Environment
   d) Education. Education falls into two categories; school smarts and street smarts. School smarts are the knowledge gained from school while street smarts are the learning that came from even the most unlikely sources.
   e) Life- situations :- Our situations in life are constantly changing and these can affect our personality in varying degrees

4. Psychological and Philosophical factors influencing personality

   a) Past Experiences.
   b) Dreams and Ambitions
   c) Self-Image.
   d) Value.

III. Self Awareness.

5. Dimensions of Self Awareness

(a) Self Realization.
(b) Self Knowledge or Self Exploration.
(c) Self Confidence
(d) Self Talk.
(e) Self Motivation
(f) Self Esteem
(g) Self Image
(h) Self Control.
(j) Self Purpose.
(k) Individuality and Uniqueness.
(l) Personality.
(m) Values.
(n) Attitude
(o) Character

6. SWOT analysis and Johari Window

An interesting way to become self aware is the use of SWOT analysis. A SWOT analysis focuses on the internal and external environments, examining strengths and weaknesses in the internal environment and opportunities and threats in the external environment. The table below will give you a clear understanding.

Internal	Your Strengths	Your Weakness
External	Opportunities In your career Field	Threats In Your Career Field

1) Your Strengths

(a)Work Experience.
(b) Education, including value-added features.
(c) Strong technical knowledge within your field (e.g. hardware, software,).
(d) Specific transferable skills (e.g., communication, teamwork).
(e) Personal characteristics (e.g., strong work ethic, self-discipline, creativity, optimism, or a high level of energy).
(f) Good contacts/successful networking.
(g) Interaction with professional organizations.

2) Your Weakness

(a) Lack of Work Experience.
(b) Low Marks, wrong major.
(c) Lack of goals, lack of self-knowledge, lack of specific job knowledge.
(d) Weak technical knowledge.
(e) Weak skills (leadership, interpersonal, communication, teamwork).
(f) Weak job-hunting skills.
(g) Negative personal characteristics (e.g., poor work ethic, lack of discipline, lack of motivation, indecisiveness, shyness, too emotional).

3) Opportunities

(a) Positive trends in your field that will create more jobs (e.g., growth, globalization, technological advances).
(b) Opportunities you could have in the field by enhancing your education.
(c) Field is particularly in need of your set of skills.
(d) Opportunities for advancement in your field.
(e) Career path you've chosen provides unique opportunities.
(f) Strong network.

4) Threats

(a) Negative trends in your field that diminish jobs (downsizing).
(b) Competitors with superior skills, experience, knowledge.
(c) Competitors who went to colleges with better reputations.
(d) Obstacles in your way (e.g, lack of the advanced education).
(e) Limited advancement in your field, advancement is cut-throat & competitive.
(f) Companies are not hiring people with your degree.

This SWOT analysis would help an individual to not only understand oneself and their present situation but also plan for ahead.

7. Sympathy, Empathy & Altruism

Sympathy:

Empathy: - Empathy is the ability to imagine what life is like for another person. Without empathy our communication with others will be one sided and we will be bound to face problems in relationship as we will be indifferent to emotions of others. We have many relationships to nurture with: parents, brothers, sisters, aunt, uncle, cousins, friends and neighbours etc.

Altruism:- A motive to increase another's welfare, without conscious regard for one's self-interests. It is Self-sacrifice for the benefit of others. Empathy is feeling another's feelings but the arousal of empathy increases helping behavior and gets us closer to pure altruism. In this we focus more on the distress of the other person than on our own distress.

IV. Change your Mind Set

8. How to change your mind set
    a. Get the Best Information Only
    b. Role Model the Best People
    c. Examine Your Current Beliefs.
    d. Shape Your Mindset with Vision and Goals
    e. Find Your Voice.
    f. Protect Your Mindset.
    g. Let Go of Comparisons.
    h. Put An End To Perfectionism.
    i. Look At The Evidence.
    j. Redefine What Failure Means
    k. Stop Worrying about what "People" think

V. Interpersonal Relationship & Communication

9. Forms of Interpersonal Relationship

    (a) Individuals working together in the same organization.
    (b) People working in the same team.
    (c) Relationship between a man and a woman
    (d) Relationship with immediate family members and relatives.
    (e) Relationship of a child with his parents.
    (f) Relationship between friends.

10. Role of communication in interpersonal relationship

    (a) Take Care Of Your Tone And Pitch
    (b) Choice of Words is Important in Relationships
    (c) Interact Regularly
    (d) Be Polite
    (e) Try To Understand The Other Person's Point Of View As Well
    (f) Individuals Can Also Communicate Through Email

VI. Communication Skills

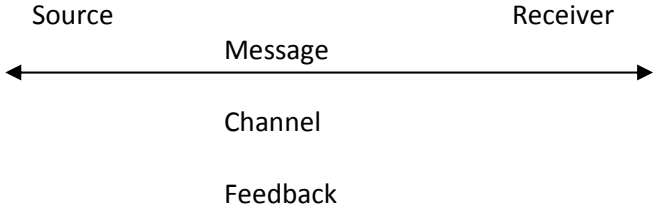
11. Communication is an exchange of ideas.

12. Styles & ways of Communication

    A) Aggressive
    B) Passive
    C) Assertive

13. Ways of Communication
    A) One way communication
    B) Two way communication

14. Components of communication



15. Common barriers to effective communication
    1. Listening Barrier
        (a) Interrupting the speaker.
        (b) Not maintaining eye contact with the speaker.
        (c) Rushing the speaker to complete what he has to say.
        (d)Making the speaker feel as though he is wasting the listener's time.
        (e) Being distracted by something that is not part of the ongoing communication.
        (f) Getting ahead of the speaker and completing his thoughts.
        (g) Ignoring the speaker's requests.
        (h)Topping the speaker's story with one's own set of examples.
        (j) Forgetting what is being discussed.
    2. Barriers with speaking
        (a) Unclear message.
        (b) Lack of consistency in the communication process.
        (c) Incomplete sentences and mumbling words and sentences.
        (d) Not understanding the receiver.
        (e) Poor eye contact.
    3. The other barriers include
        (a) Assumptions.
        (b) Patterns / reverting to type.
        (c) Language - different level of meaning.
        (d) Erroneous transition, value judgment.
        (f) Use of negative words.
        (g) Perceptions- depending on mood, the receiver may misinterpret the message.

16. Tactful Communication
    (a) **T** - Think before you speak.
    (b) **A** - Assertive communication.
    (c) **C** - Clarity of thoughts and content.
    (d) **T** - Tone and pitch of voice.
    (f) **F** - Focus on interests, needs of the listener.
    (g) **U** - Uncover hidden feelings.
    (h) **L** - Listen for feedback.
17. Characteristics of a good and effective listener
    a) is attentive
    b) do not assume
    c) listen for feelings and facts
    d) Concentrate on other speakers kindly and generously
    e) Opportunities

VII. Leadership Traits

17. Important Leadership Traits

(a) Alertness.
(b) Bearing
(c) Courage.
(d) Decisiveness
(e) Dependability.
(f) Endurance.
(g) Enthusiasm.
(h) Initiative
(j) Integrity
(k) Judgment
(l) Justice.
(m) Knowledge
(n) Loyalty
(o) Sense of Humour

VIII. Types of Leadership

18. Types of Leadership styles:-

Basically there are two styles of leadership. It must however be realised that there is a wide range of styles between the two extremes, the autocratic and democratic.

a) Autocratic Style of Leadership.
   In this all policies and procedures are determined by leader.
b) Democratic Style of Leadership.
   Wherever possible, policies should be matter of a group decision and discussion with active encouragement and assistance by the leaders
c) Laissez Faire Leadership Style
   In this leader should play a rather passive role in social participation and leave complete freedom for group or individual decisions in relation to activity and group procedure.

In Laissez Faire Leadership style, leader leaves complete freedom for group.

IX. Attitude – Assertiveness and Negotiation

19. Types of Attitudes

a) Positive Attitude
b) Negative Attitude
c) Neutral Attitude
d) Rebellious Attitude
e) Rational and Irrational Attitudes
f) Individual and Social Attitude

20. How to develop Assertiveness

a) Experiment and Try New Things.
b) Extend Your Social Circle.

c) Learn to Make Decisions for Yourself.
d) Indulge in Knowledge.
e) Admire Yourself & Others.

21. Negotiation
    a) Be Sensitive to the Needs Others.
    b) Be Willing To Compromise.
    c) Develop Your Creative Problem-Solving Skills.
    d) Learn to Welcome Conflict.
    e) Practice Patience.
    f) Increase Your Tolerance For Stress.
    g) Improve Your Listening Skills.
    h) Learn To Identify Bottom-Line Issues Quickly.
    i) Be Assertive, Not Aggressive

X. Time Management

22. How does Time Management Help?
    a) Reduce or eliminate wasted time and effort so you'll have more productive time each day.
    b) Improve your productivity so you can accomplish more with less effort.
    c) Focus your time and energy on what is most important & make time for the things you want and value. Thus help you find greater balance and fulfillment.
    d) Improve your performance while reducing stress.
    e) Set and achieve your long-term goals.

XI. Effects of leadership with historical example

23. **Will Power (Sir Winston Churchill)**

'Try, try again' is an age old advice based on the famous poem about Robert Bruce. The value of dogged perseverance was once articulated in a most dramatic manner by Sir Winston Churchill, who was the Prime Minister of the UK during World War II. He came out of the war as one of the tallest leaders in the world. He was invited by his school to be the guest of honour for the celebration of the 150th Anniversary of the school. He was also requested to deliver the keynote address to inspire the students to follow his example and become outstanding leaders in their lives. Churchill accepted the invitation. There was great expectation among all sections of society to listen to the views of Churchill on leadership.

On the appointed day, the hall where the function was being held, was overflowing with people .The media and the scholars had turned up in strength. Everyone was looking forward to Sir Winston revealing the secrets of his leadership.

After the usual courtesies, Churchill was invited to deliver his keynote address. He got up from his chair, walked slowly to the podium took out his small rectangular glasses and wore them. He then took out a small piece of paper, placed it in the podium and peered over his glasses at the audience. There was pin drop silence. He then delivered his address;

"NEVER – NEVER – NEVER – NEVER - GIVE UP"

Having roared these five words, he ambled back to his seat. There was a bewildered hush for a long time. However, his great message soon sank home. People stood up and gave him a long and thunderous ovation. In just five words. Churchill distilled the great secret of his leadership and success.

XII. Stress Management Skills

24. Stress management techniques
    a) Take deep breath
    b) Talk it out
    c) Take a break
    d) Create a quite place in your mind
    e) Pay attention to physical comfort
    f) move
    g) Take care of your body
    h) Laugh
    i) Manage your time
    j) Know your limits
    k) Do you have to be right always
    l) Have a good cry
    m) Look for the good things around your
    n) Talk less, listen more

XIII. Interview Skills

XIV. Conflict Motives-Resolution

XV. Importance of Group/Team Work

XVI. Influencing Skills

XVII. Body Language

XVIII. Sociability: Social Skills Etiquettes and Mannerism

XIX. Values/Code of Ethics

25. Value means a standard of behavior and Ethics in turn means a set of moral principles that govern a person's behaviour.
26. List out important Values / Important values of a good & successful leader
    a) **Honesty** - not to steal, cheat or lie.
    b) **Integrity** - uprightness.
    c) **Purity** - no duplicity, insincerity in thought, word or deed.
    d) **Discipline** - behaviour according to essential rules and norms which is self-imposed.
    e) **Selflessness** - unselfishness, rise above selfish or self-centered individualism
    f) **Loyalty** - true, faithful to duty, love or obligation to person/ institution, faithful in allegiance to the nation or mother country.

g) **Fairness** - being impartial, give right decision.
h) **Equality** - treat everyone equally.
i) **Trust** - firm belief in the reliability, ability, strength of someone or something.
j) **Support** - give help, encouragement, or approval.
k) **Respect** - a feeling of admiration for someone because of their qualities.

27. Primary duty of a citizen is to loyal and owe allegiance to the state
28. Duty is a moral/legal obligation and a binding force of what is right and behaviour towards superior colleagues and subordinates.
29. Define Citizen?
    A citizen is a member of a political community who owes allegiance to the state and who enjoys protection and the rights granted by the constitution of a country. A partial citizen owes allegiance to the state but has no political rights. No allegiance to the state and has no political rights but enjoys only civil rights.
30. How can acquire Citizenship?
    a) By birth
    b) By Descent
    c) By Registration
    d) By Nationalization
31. What area the duties of a Good Citizen?
    A good citizen is a person who knows his rights and duties. Some of the important duties of a good citizen area:-
    a) Is to be loyal and owe allegiance to the state
    b) Patriotism, Preservation of Independence of the country
    c) Service before self
    d) Sense of duty
    e) Care and protection of the Government property
    f) High character and
    g) A good citizen considers right of other citizens also as important as his own right.
32. What are the measures to develop personality?
    a) Judgment
    b) Mirroring
    c) Be cheerful and nice
    d) Be sincere and trustworthy
    e) Provide compelling ideas
    f) Conviction
    g) Positive attitude
    h) Leadership skills
    i) Communication skill
33. What is Man Management?
    Definition: Mann Management may be defined as the creation and maintenance of an efficient and contented unit. Good Man Management is essential in the NCC as in the services, as it aims at keeping everyone happy and under proper control thus resulting in greater efficiency.
    Aim of Man Management: The aim of man management in the Armed Forces is to make all personnel mentally and physically for battle, during the battle and after the battle

34. Define two elements of perception?
    (a) Perception is a process of selection or screening which prevents us from processing irrelevant or disruptive information and
    (b) There is organization of stimuli implying that the information that is processed has to be ordered and classified in some logical manner which permits us to assign meaning to the stimuli situations.
35. What is the role of NCC in personality / character development?
    NCC plays key role in personality development of cadets through various following activities:-
    a) Drill
    b) Integration of cadets in camps
    c) Participating competitions
    d) Participating in sports and adventure activities
    e) Building confidence
    f) Improve the leadership traits
    g) Accepting various responsibilities
    h) Opportunity to expose the talents
    i) Opportunity to interact with the public
    j) Making service minded
36. Write a short note in Saluting National Flag
    i. It is customary to salute the National flag when it is being hoisted or hauled down
    ii. Officers will face the flag staff, stand to attention and salute
    iii. NCC cadets and other ranks only stand to attention.
37. Definition and scope of Motivation
    i. Motivation is that force from which and individual which makes him gain something. It stimulates interest
    ii. It consists of the mental makeup and the will to do
    iii. Motivation energizes force and characterizes your behaviour towards achieving the end results

4. Disaster Management & Civil Affairs

I. Civil Defence Organizations

1. Civil Defence

   The Civil Defence Act of India was enacted by Parliament on May 1968. Today, 'Civil Defence' includes any measures, not amounting to actual combat, for affording protection to any person, property, place or thing in India or any part of the territory thereof, against any hostile attack, whether from air, land, sea or other places, or for depriving any such attack of the whole or part of its effect.

2. Civil Defence Measures consists of
   a) Protective Preventive measures
   b) Control measures
   c) Restorative measures
3. Services of Civil Defence Corps
   a) Headquarters Service.
   b) Warden's Service.

      It is a link between the public and the authorities. This service is responsible for organizing self-help parties, fire parties and to check light restrictions, report damages and guide homeless to the Rest Centres.

   c) Fire Fighting Service.
   d) Casualty Services. The functions of this service are:-
      (i) Rendering first aid on the spot.
      (ii) Providing transport to casualties for short distances.
      (iii) To send various causalities for further treatment.
   e) Communication Services. This service is responsible for:-
      (i) Receipt and dissemination of air raid warning.
      (ii) Provision of co-ordination and control facilities.
      (iii) Provision of communication between warden posts, control centres through messengers or telephone etc.
   f) Rescue Services.
   g) Welfare Services
   h) Depot and Transport Services.
   i) Salvage Service.
   j) Corpse Disposal Service.
   k) Supply Service.
4. What is **Disaster Management?**

   There are various types of calamities. Natural and man-made which cause immense human suffering large scale loss of human and animal life and damage to property, problems created during all these emergencies almost like varying only in extent. In order to face and overcome such problems a well planned trained organization is essential. This is known as disaster management.

5. Organization of National Disaster Management Authority (**NDMA**). At the national level, the NDMA, will be the apex body for disaster management, and will be headed by the Prime Minister. It will be responsible for laying down policies, plans and guidelines for Disaster Management and coordinating their enforcement and implementation for ensuring timely and effective response to disasters
   a) Responsibilities at National Level
      (a) Approve the National Disaster Management Plans and Disaster Management Plans of the Central Ministries/Departments.
      (b) Take such measures, as it may consider necessary, for the prevention of disasters, or mitigation, or preparedness and capacity building, for dealing with a threatening disaster situation or disaster.
      (d) Oversee the provision and application of funds for mitigation and preparedness measures..
      (e) Exercise superintendence, direction and control of the **National Disaster Response Force (NDRF**).
      (f) Lay down framework of broad policies and guidelines for working of the **National Institute of Disaster Management** (**NIDM**).

   b) **National Executive Committee (NEC)** The NEC comprises the Union Home Secretary as Chairperson. The Secretaries various important Ministries/Departments of the Govt. and the Chief of the Integrated Defence Staff of the Chiefs of Staff Committee are members.
   c) **State Disaster Management Authority (SDMA).** At the State level, the SDMA, will be headed by the Chief Minister, who will lay down policies and plans for Disaster Management in the State. The State Government shall constitute a **State Executive Committee (SEC)** to assist the SDMA in the performance of its functions. The SEC will be headed by the Chief Secretary to the State Government and will coordinate and monitor the implementation of the National Policy.
   d) **District Disaster Management Authority (DDMA).** The DDMA will be headed by the District Collector, Deputy Commissioner or District Magistrate as the case may be, with the elected representative of the local authority as the Co Chairperson.
   e) **Local Authorities.** For the purpose of this Policy, local authorities would include **Panchayati Raj Institutions (PRI)**, Municipalities, District and Cantonment Boards, and Town Planning Authorities which control and manage civic services
   f) **National Disaster Response Force (NDRF).**

II. Types of Natural Disasters

6. Classification of Disasters:- Disasters can be classified based on nature of onset (rapid/ slow), natural and manmade disasters as under
   a) **Natural Disasters**.
      (i) **Wind Related**. Storms, Cyclones, Tornados, and Tidal Waves.
      (ii) **Water Related.** Floods/Flash Floods, Cloudburst, Excessive Rains and Drought.
      (iii) **Earth Related.** Earthquakes, Tsunamis, Avalanches, Landslides and Volcanic Eruptions.

b) **Man Made Disasters**. These can be classified as under :-
   (i) **Accidents**. Road, rail, air, sea accidents or building collapse.
   (ii) **Industrial Mishaps**. Gas leaks, explosion, sabotage and safety breaches.
   (iii) **Fires**. In buildings, coal fields or oil / gas fields and oil / gas storage depots.
   (iv) **Forest Fires**. In tropical countries, forest fires are often manmade.
   (v) **Contamination/Poisoning**. Incidents of mass food poisoning, water contamination, illicit-liquor poisoning and epidemics.
   (vi) **Terrorists Activities**. Serial Blasts / explosions in public transport or markets.
   (vii) **Ecological**. Pollution of air, water, noise, soil degradation, loss of biodiversity, global warming, sea level rise, toxic wastes and nuclear accidents.
   (viii) **Warfare.** Conventional, chemical, biological or nuclear.

7. Types of Natural Disasters
   a) Volcanoes
   b) Landslides
   c) Earthquakes
   d) Tsunamis
   e) Hurricanes
   f) Floods
   g) Droughts
8. Write 7 points regarding earthquakes
   (a) Earthquake is natural phenomenon due to which sudden vibrations over on a portion of earth's crust.
   (b) It causes collapse of building and massive damage to life and property.
   (c) The reason is shifting of plates under the earth's crust
   (d) It is measures in Richter scale
   (e) The study associated with earth quake is called seismography.
9. What are relief measures for cyclones?
   I. Warning Period. This is the period which the warning signals are sounded indicating the extent and area that is likely to get affected by the flood (Cyclone)
   II. Flood Period. This is the period when the floods have already hit the areas under threat. This period may last from 02 to 10 days by which the water may reach to safe level.
   III. Recuperation Period. This phase is envisaged for the period when the floods have receded and the administration is in the process of clearing the debris and normalizing the civic amenities.

III. Fire Fighting

10. What is fire? Name its constituents.
    Fire is the outcome of either heating or over heating of a combustible substance to the required temperature or igniting an inflammable material.The following three elements are essential for creation of fire and its continuation:-
    a) Oxygen
    b) Sufficient heat to raise the temperature of fuel to its burning point or ignition
    c) Combustible or burnable materials (Solid, Liquid or Gas)

11. Modes of Spreading Fire:-The fire spreads by the transmission of heat in one or any combination of the following four ways:-
    (1) Conduction; (2) Convection; (c) Radiation; (d) Direct Burning

12. Methods of Fire Fighting
    a) Starvation
    b) Cooling
    c) Smothering
13. Fire Fighting Parties
    a) **House Fire Parties.** It consists of four persons who carry stirrup pumps and water buckets. They act as fire watchers and work under the orders of the wardens. They carry one stirrup pump, two buckets, one torch and one hand axe. One steel helmet and one whistle per member is envisaged as personal equipment.
    b) **Auxiliary Fire Services**. This consists of eight persons with Trailer Pump which can throw water at the fire from a distance. The members of this Service are drawn from the Home Guards.
14. Fire Fighting Equipments
    a) Fire Extinguishers
        1. **Soda Acid Extinguishers**. These fire extinguishers are used for extinguishing fires involving ordinary combustible material, where the cooling effect is achieved by water or solution containing large percentage of water. Such extinguishers are conical /cylindrical in shape
        2. **Foam Type or Dry Chemical Powder Extinguishers**. These fire extinguishers contain dry chemicals or solution and are exclusively meant for extinguishing fires involving inflammable liquids such as oils, fats, or grease, where blanketing the fire to isolate it from Oxygen (Air) is required
        3. **CTC Carbon dioxide and Dry Chemical Extinguishers.** These fire extinguishers contain chemicals, either liquid, gas or dry, and are mainly used to fight fires involving 'Live'electrical equipment etc. where, the use of an electrically non-conductive extinguishing agent is of most importance.
    b) Stirrup Pumps
    c) Buckets.
    d) Fire Beaters and Hooks.

IV. Traffic Control during Disaster under Police Supervision

V. Essential Services and their Maintenances

15. Write any 5 roles NCC cadets can perform in maintaining essential service during natural calamities
    a) NCC cadets being organized and trained group of young citizens can help civil administration in maintaining essential services
    b) Provide first aid to injured
    c) Assist civil wardens in carrying out the duties.
    d) Assist Tele communication department a telephone operators
    e) Assist sanitary department in their duties
    f) Cadets can work as ambulance assistant or nursing assistant In hospitals.

5 Social Awareness & Community Development

I. Basics of Social Service & its need

1. What do you mean by social service and what are its aims?
   a) Social service activity are those voluntary service under taken by individual or a group of people
   b) Any action taken by an individual or group for the benefit of a society
   c) Social service activities are self less services rendered for the betterment of the members of the society
   d) By undertaking social service activities NCC cadets, became aware of needs of the society and thereby the aim of self less service can be achieved.
2. Methods of Social Work
   a) Social Case Work
   b) Social Group Work
   c) Community Organization

3. **Types of Social Service Activities**

   (a) Education.
   (b) Family Welfare, Medical Care, Family Planning and Nutrition.
   (c) Provision of Water and Cooking Fuel, Roads, Electricity and Sanitation.
   (d) Old Age Support Systems.
   (e) Employment.
   (f) Social Assistance, Social Security and Care & Protection.
   (g) Housing and Rehabilitation.
   (h) Recreation, Sports and Social activities.

   Social service activities that can be organized at NCC unit level

   a) Blood donation
   b) Tree plantation
   c) Construction/maintenance of roads
   d) Adult literacy
   e) Anti dowry drive
   f) AIDS awareness campaign
   g) Eye donation pledges
   h) Village adoption
   i) Anti drug drive
   j) Area cleaning drive
   k) Pulse Polio drive

II. Rural Development Programmes.

4. Important Rural Development Programmes in India
   a) **MGNREGA**: - On 2nd Feb, 2006 '**National Rural Employment Guarantee Act**'2005 (**NREGA**) was launched and in 2010 it was renamed as **the Mahatma Gandhi National Rural Employment Guarantee Act** (**MGNREGA**).
   b) **Swarnajayanti Gram Swarojgar Yojna (SGSY) :-** This programme was launched in April, 1999. This is a holistic programme covering all aspects of self-employment such as organization of the poor into self-help groups, training, credit, technology, infrastructure and marketing. SGSY is being implemented by the **District Rural Development Agencies** (DRDAs) with the active participation of Panchayat Raj Institutions, the Banks, the line Departments, and NGOs. SGSY has been restructured as **National Rural Livelihoods Mission** (**NRLM**) and now renamed as '**Aajeevika**'.
   c) **Jawahar Gram Samriddhi Yojna (JGSY)**
   d) **Indira Aawas Yojna (IAY)**
   e) **National Social Assistance Programme (NSAP)**
   f) **Pradhan Mantri Gram Sadak Yojana (PMGSY)**
   g) **Sampoorna Grameen Rozgar Youjana (SGRY)**
   h) **National Food for Work Program (NFWP)**
   i) **Drought Prone Area Program (DPAP)**
   j) **Desert Development Program (DDP)**
   k) **Integrated Wastelands Development Program (IWDP)**
   l) **Rajiv Gandhi National Drinking Water Mission (RGNDWM)**
   m) **Central Rural Sanitation Program (CRSP)**
5. Panchayat Raj system is based on Democratic Decentralization

III. NGOs Role & Contribution

6. Types of **NGOS (Non Governmental Organizations)**
   a) **INGO**: - It stands for International NGOs.
   b) **BINGO**. Business oriented International NGOs.
   c) **RINGO**. Religious International NGOs.
   d) **ENGO**. Environmental NGO.
7. Examples of Important NGOs
   a) **Shri Niketan Yojna** - by Ravinder Nath Tagore.
   b) **Seva Gram Yojna** - by Gandhiji.
   c) **Gram Yojna** by Vinoba Bhave.
   d) **Child Relief and You**.
   e) **Helpage India.**
   f) **People for Animals (PFA)** & **Society for Prevention of Cruelty to Animals (SPCA).**
   g) **International Red Cross** and **Red Cresent Movement** are the world's largest group of humanitarian NGOs.

8. Contribution of NGOs
    a) Blood Donation.
    b) Adult Literacy.
    c) Anti Dowry Drive.
    d) Anti Leprosy Drive.
    e) Anti Drug Drive.
    f) Tree Plantation.
    g) Environmental Programmes.
    h) Help in natural calamities such as Flood, Earth-quake.
    i) Educating people about the ill-effects of AIDS and education for prevention of the same.
    j) Family Planning Programmes.
    k) Community Development Work.
    l) Promotion of Social-equality.
    m) Wildlife and Animal Care.
    n) Human-rights.
    o) Awareness Campaign.
    p) Child Care.
    q) Polio Eradication drive.
    r) Providing schooling facilities especially in remote villages and rural areas.
    s) Creating and providing health and hygiene infrastructure and facilities to reduce diseases and help in creating a healthy and fit population.
    t) Cottage Industry.
    u) Orphanage and Old Age Homes.

IV. Contribution of Youth towards Social Welfare

9. Contribution of Youth towards Social Welfare
    a) Leadership
    b) Community Service
    c) National and Cultural Integration
    d) Education and Literacy.
    e) Environment.
    f) Health Care and Family Welfare.
    g) Physical Education and Adventure Training.
    h) Old Age Care.
    i) Watershed and Waste Land Development.

V. Family Planning

10. What is Family Planning

    Family planning is defined as the voluntary, responsible decision made by individual and couples as to the desired family size and timing of birth. Therefore on the micro level it means children

are born because they are wanted and provided for and on the macro level it contributes to the betterment of human life.

11. Methods of Family Planning
    a) Vasectomy.
    b) Tubectomy.
    c) Conventional contraceptives like condoms and diaphragms.
    d) Oral pills.

VI. Drug Abuse & Drug Trafficking

12. Types of Drugs –There are three main types of drugs affecting the central nervous system:
    a) **Depressants**:- Depressants are drugs that slow down the function of the central nervous system. Depressant drugs do not necessarily make a person feel depressed. They include:-
       (i) Alcohol.
       (ii) Cannabis.
       (iii) Barbiturates, including Seconal, Tuinal and Amytal.
       (iv) Benzodiazepines (Tranquilisers), Benzos, Tranx, such as Rohypnol, Valium, Serepax, Mogadon, Normison and Eupynos.
       (v) GHB (Gamma- hydroxybutrate), or Fantasy.
       (vi) Opiates and Opioids, including Heroin.
    b) **Stimulants:**-Stimulants act on the central nervous system to speed up the messages to and from the brain. They make the user feel more awake, alert or confident. Stimulants increase heart rate, body temperature and blood pressure. Other effects include appetite, dilated pupils, talkativeness, agitation and sleep disturbance. Mild stimulants include:-
       (i) Ephedrine used in medicines for bronchitis, high fever and asthma.
       (ii) Caffeine in coffee, tea and cola drinks.
       (iii) Nicotine in tobacco.
    c) **Hallucinogens**. Hallucinogens affect perception, People who have taken them may believe they see, hear and perceive things that are not really there or what they see may be distorted in some way. The effects of hallucinogens vary a great deal, so it is impossible to predict how they will affect a particular person at a particular time. Hallucinogens include:-
       (i) Dhatura.
       (ii) Ketamine.

VII. Civic Responsibilities

13. The most important function of education is Human Resource Development
14. Explain the role of NCC in educating people to make use of public facilities and service
    a) The NCC unit identify a village preferably within their enrolment area
    b) The unit must establish a liaison with local authorities
    c) The unit should create a good relationship with the village leader
    d) The unit should study the problems of the people in that area
    e) The people of that area should be motivated to solve their problems
    f) The people should be convinced that the work is for the benefit of the people

VIII. Causes/Prevention of HIV/Aids & Role of Youth

15. AIDS stands for **Acquired Immuno Deficiency Syndrome**
16. How does AIDS spread

    Aids spread through
    a) Sexual Transmission
    b) Blood Transmission
    c) Sharing needles and syringes for intravenous drug use
    d) Mother to child transmission during pregnancy, delivery or breast feeding.
17. Measures to prevent AIDS

    HIV/AIDS can be prevented in four ways:-
    a) Avoid sex with more than one partner. If this is not possible, then use condoms for every sexual act, irrespective of the type of sex.
    b) Checking all the blood and blood products for HIV infection before transfusion.
    c) Avoid drug abuse, especially sharing needles and syringes for injecting drugs
    d) To reduce risk of mother to child transmission, women with HIV receive HIV medicines during pregnancy and child birth and in certain situations, have a scheduled cesarean delivery.

18. Role of Youth in preventing HIV

    HIV is more common in the most productive age group of 15-45 years, and therefore causes major impacts on the economic status of the affected individual, family, community, and the nation at large. The young adults can play a very important role in preventing the HIV at community level, and also minimize its impact at all levels by taking following actions :-
    a) Youth can assume responsibility in preventing HIV infections by avoiding behaviour that might lead to HIV infections.
    b) Youth may also share the right to refuse sex and assume responsibility for ensuring safe sex.
    c) People living with HIV/AIDS have the same right to education, employment, health, travel, marriage, recreation, privacy, social security, scientific benefits etc. Hence, all should share responsibilities for avoiding HIV infection / re-infection.
    d) The youth by creating a proper and positive peer pressure, can delay the age at first sex, avoid sex before marriage, practicing safer sex, and preventing alcohol and drug abuse. The stereotypical image of a —macho male needs to be changed to depict responsible behaviours.
    e) The young can also play an important role in addressing gender imbalance, which is one of the important factors for underdevelopment and HIV transmission.
    f) Youth should also educate general public by spreading the information that HIV cannot be transmitted by the following actions:-
        (i) Shaking Hands.
        (ii) Sharing of Clothes.
        (iii) Sharing of Food and Utensils.

(iv) Sharing of Toilets.
(v) Insect Bites.
(vi) Hugging or Kissing.
(vii) Working in the same office or travelling in the same vehicle.
(viii) Playing or swimming with the infected person.

19. **Hashim Committee** has been set up in India for identification of BPL families in urban areas
20. Five Year Plans
    a) Removal of Poverty was started as the dominant objective **of Fifth Five Year Paln**
21. What are the causes of Cancer
    a) Prolonged chewing of tobacco, zarda, pan and pan masala
    b) Heavy smoking
    c) Excessive drinking of alcohol
    d) Poor oral hygiene, inadequate dental care
    e) Air and water pollution
    f) Deficiencies of balanced diet.
22. **Types of Cancer:** Different types of cancer that men and women suffer are :-
    a) Oral cancer.
    b) Larynx cancer.
    c) Lung cancer.
    d) Cervical cancer.
    e) Breast cancer.
    f) Prostate cancer.
    g) Colon cancer.

6 Health & Hygiene

I. Structure and Function of Human body

1. Skeletal System of Human body

   Structures of bones: The human body has 206 bones of various shapes and sizes. The bones give shape and firmness to the body, as also it protects the vital organs like brain, heart, lungs spinal cord**.** Bones can either be "loosely arranged" or "densely arranged". The loosely arranged bone is called "spongy bone" and densely arranged bone is called "compact bone". Some bones are hollow from inside and filled with bone marrow. The point where two or more bones meet together is called a Joint

2. Classification of bones
   a) Long bones
   b) Short bones
   c) Flat bones
   d) Irregular bones
   e) Sesamoid bones
3. Classification of Muscular System
   a) Voluntary/Skeletal Muscles
   b) Involuntary Muscles
   c) Cardiac Muscles.
4. Organ Systems
   a) Circulatory System
      1) **Heart:** The Heart is the most important organ of blood circulation. Heart gets purified blood from lungs. Heart is situated in thorax between the lungs and on to the left side of the body. The size of heart in equal to a cloned fist and the average wt of heart in a male is about 300 gms, and in a female about 250 gm. It is divided into two compartments, the right and the left. The right side contains impure blood while left side contains pure blood. Each side is again divided into AURICLEs and VENTRICLEs. Auricles are the receiving chambers.

      2) **Blood:** The blood is also known as the 'transport system'of the body, and plays an important role in maintenance of life. The total volume of blood contains – hemoglobin, RBC, WBC & platelets. **Hemoglobin** is the pigment contained in blood. The colour of blood is red because of hemoglobin content
      3) Blood Vessels: Blood vessels are tube like structures which carry blood all over the body for circulation. These are of three types:-
         i. **Arteries:** These are the blood vessels which carry pure blood from the heart to all parts of the body.
         ii. **Capillaries:** These are tiny blood vessels which connect the small arteries & veins. The exchange of oxygen and nutrition with carbon di oxide by the tissue takes place in the capillaries.

iii. **Veins:** These blood vessels carry impure blood to the heart. The main veins are called 'superior'and 'inferior'vena cava.

b) Respiratory System: Respiration or breathing is a process by which, oxygen, obtained from fresh air, is absorbed in to the blood stream and carbon dioxide, formed by the tissue action, is removed from the blood and expelled into the air, that is then expired. It involves the taking in of oxygen and giving out of carbon dioxide. The main organs of respiratory system are Nose, Pharynx, Larynx, Trachea, Bronchi, and the Lungs.

c) Digestive System: - Digestion is a mechanical and chemical process by which, complex food substances are converted into simple substances so that they can be easily absorbed by blood and utilized by the various tissues of the body according to their requirements. The main organs of digestive system are mouth, salivary glands, pharynx, esophagus, stomach, pancreas, liver, small intestine and the large intestine

d) Excretory System: -

Excretion is a process by which waste products are removed out of the body.

a) Skin: - Waste matter in the form of sweat is removed through perspiration by the skin.
b) Urinary System :- The main organs of the urinary system are:-
   1) Kidneys
   2) Ureters
   3) Urinary Bladders.
   4) Urethra.

e) Nervous System

Nerves are silvery wire like fibers connected with brain. Nervous system is divided into three

1) **The Central Nervous System**: This consists of brain and spinal cord.
2) **The Peripheral Nervous System**: This forms the connections between the central nervous system and the various organs and muscles.
3) **The Autonomic Nervous System:** It is an offshoot of the central nervous system and controls the involuntary functions of the various internal organs such as the stomach, intestine bladder and also the tiny muscles of the blood vessels and also controls the secretions of the Liver and Kidneys. A person is neither conscious for the normal activities of the autonomic system nor is he able to control them.

II. Hygiene & Sanitation

5. Define hygiene and sanitation

Hygiene refers to cleanliness of a person. Hygiene is the science of health that causes all aspects which contribute healthy living. Sanitation means cleanliness of the environment.

6. Benefits of Personal Hygiene
    a) To maintain a good and clean physique.
    b) To maintain good muscle strength.
    c) To maintain clean mouth and teeth.
    d) To maintain resistance to prevent information.
7. Main components of Personal Hygiene
    a) Sleep
    b) Bathing
    c) Eating & Drinking
    d) Care and Cleanliness of Skin, Hair and Teeth.
    e) Exercise
8. Sources of water supply
    a) Rain Water
    b) Surface Water
    c) Underground Streams.
9. Purification of water
    a) Boiling and Filtering Water: - Untreated or treated potable water from any unreliable source must be boiled at 100 degrees for 30 min, cooled and then filtered. Only then will it be fit for consumption.
    b) Clarification:-This is the removal of suspended matter through filtration, by passing it though filter beds of gravel and sand or through properly sterilized filters.
    c) Sterilization:-This is done by using chlorine gas or bleaching powder.
    d) Pinking: - Use of Potassium permanganate for purification of water is pinking.
    e) Precipitation:-This is done by adding alum or some similar chemical to water, which makes all impurities accumulate at the bottom and leaves pure water. This water is then passed through a filter.
    f) Chlorination: - It is the addition of calculation of quantity to chlorine to the filtered water. It will photogenic bacteria, renounce harmful chemicals, removes the smell at last
    g) Sedimentation: - Adding chemical co-gulags as allenmiko etc results in rapid formation of flakes, which sedimentary rapidly carrying organic and impurities with them to the bottom of the container.
    h) Filtration: - It can be can be carried out by canvas cloth filters, plastic filter, ceramic filters etc.
    i) Chemical disinfection: - By adding abeam, bleaching powder, potassium permanganate, iodine.

10. Main components of Food hygiene
    a) Milk Hygiene
        1) The animal and its surroundings should be healthy and clean. The animal should be properly washed before mulching.
        2) Milk handler should be free from any communicable disease.
        3) Milk vessels should be totally clean, sanitized and kept covered.

4) Water supply must be safe.
5) **Pasteurization.** It is the heating of milk to such temperature and for such periods of time, as are required to destroy any pathogens without destruction of nutritive value. It does not alter taste. (Temperature 130 C and time 1 to 2 seconds).

b) Meat Hygiene
c) Fish Hygiene
d) Fruits & Vegetables Hygiene
e) Hygiene of eating place
f) Hygiene of food handlers

11. How will you ensure personal hygiene in NCC camps?
    a) Ensure care and cleanliness of all cadets
    b) Ensure bathing every day.
    c) Adequate exercise
    d) Properly cooked and nutritive food is served
    e) Adequate rest – 7 to 8 hours sleep.
    f) Proper disposal of waste materials
    g) Ensure preventive measures against diseases.

III. Physical and Mental Health

12. Elements of good health
    a) Absence of disease.
    b) Ability to work hard with efficiency and enthusiasm.
    c) Ability to endure stress and strain.
    d) Cheerfulness.
    e) Courage.
    f) Freedom from anxiety.
    g) Self control and self confidence.
    h) Sense of well being.
    i) Wholesome mental attitude.
13. Characteristics of Healthy mind
    a) Normal appetite.
    b) Calmness.
    c) Cheerful outlook.
    d) Good temper.
    e) Socially acceptable habits.
    f) Well regulated instincts.
    g) Normal physical vitality.
    h) Receptivity to new ideas.
    i) Sex consciousness.

IV. Infectious and Contagious Diseases and its Prevention

14. Classification of Communicable Diseases
    a) Excremental Diseases.
    b) Droplet Infection
    c) Contact Diseases.
    d) Insect Borne Diseases.
        1) Mosquito - Malaria, Dengue and Filaria.
        2) Sand fly - Sand fly fever, Kala Zar, Oriental Sore.
        3) Lice - Typhus, Relapsing Fever.
        4) Flies - Diaorreah, Dysentery, Cholera, Typhoid.
        5) Fleas - Plague, Typhus.
        6) Ticks - Relapsing Fever, Typhus.
    e) Water Borne Diseases
    f) Animal Borne Diseases.
15. What are preventive measures for Malaria?
    a) DDT Spray
    b) Use of mosquito nets
    c) Use of mosquito repellents
    d) Wearing fully covered dress
    e) Avoid stagnant water near living area
    f) Spray kerosene oil in stagnant drainage water
16. Two contact diseases are chicken pox and syphilis

17. Important Inoculation and Vaccinations.

Name of Vaccine	**Disease Prevented**
Inj Rabipur	Rabies
Inj TAB	Typhoid
Inj Hepatitis 'B'	Hepatitis 'B'
Inj T T	Tetanus
Oral Polio	Polio

18. Diseases caused by deficiency of vitamins

Vitamin Deficiency	Diseases
Vitamin A	Rickets

19. Leafy vegetables contain Vitamin D

Source of Vitamins

Vitamins	Source

V. First Aid in Common Medical Emergencies

20. The condition in which the lungs do not get sufficient supply of air is Asphyxia
21. What are the uses of bandage?
    a) To protect wound from infection
    b) To stop bleeding
    c) To reduce swelling and early healing
    d) To support the affected area
    e) To enable the individual to carry out his day to day routine.
22. What are the types of wounds and how will you treat them?

    Types of wounds

    a) Incised wounds – caused by sharp objects, blood vessels are cut and hence freely.
    b) Lacerated wounds- caused by machines claws etc, edges are irregular and bleeding is less.
    c) Condensed wounds- Caused by direct blow blunt object or by creasing followed by brushing of tissues
    d) Punctured wounds- By pointed objects small openings but are sharp

    Treatment of wounds

    a) Place casualty in suitable position. Do not move
    b) Elevate bleeding part
    c) Expose the wound, remove visible foreign bodies
    d) Cover the wound with clean dressing.
23. What is artificial respiration? What are the types of artificial respiration?

    If there is any irregularity in breathing or cardiac arrest artificial respiration is given. If it is given correctly and in time the patient life can be saved.

    Types of Artificial respiration

    a) Holger Neilson Method
    b) Scheefer's Method
    c) Mouth to Mouth breathing

VII. Introduction to Yoga & Exercises

24. Potential benefits of Yoga for adults.

    Yoga as Exercise or Alternative Medicine.

    a) Many yoga practitioners have reported musculoskeletal and mental health improvements, as well as reduced symptoms of asthma in asthmatics.
    b) The three main focuses of Hatha yoga (exercise, breathing, and meditation) make it beneficial to those suffering from heart disease.

c) For chronic low back pain, specialist Yoga for Healthy Lower Backs has been found 30% more beneficial.
d) There has been an emergence of studies investigating yoga as a complementary intervention for cancer patients.
e) **Mindfulness Based Stress Reduction (MBSR)**.
f) Yoga has also been studied as a treatment for schizophrenia.
g) The practice of yoga in Hindu tradition also has psychological benefits, allowing one to develop control over one's mind and body.
h) Implementation of the Kundalini Yoga Lifestyle has shown to help substance abuse addicts increase their quality of life according to psychological questionnaires like the Behavior and Symptom Identification Scale and the Quality of Recovery Index.

25. Asanas helpful for curing ailments and maintaining good health.
    a) Padmasana
    b) **Baddha Padmasana**.
    c) **Siddhasana**
    d) **Gyan Mudra**.
    e) **Trikonasana**.
    f) **Ardha Chandrasana**.
    g) **Suryanamaskara**
    h) **Shavasana**.
    i) **Gomukhasana**.
    j) **Vijrasana**.
    k) **Dhanurasana.**
    l) **Bhujangasana**
    m) **Chakrasana**.
    n) **Sarvangasana**.
    o) **Halasana.**

7 Adventure Training

Adventure Training is the training given to cadets/ youth by the NCC to develop the quality of leadership, self confidence and feeling of team spirit

I. Parasailing

1. Types of Parasailing
   a) **Winch Boat Parasailing.** In this sort of Parasailing the ascent and descent of the parasail or takes place from the boat itself. The boat in the sea is well equipped with parasailing equipments
   b) **Beach Parasailing.** Beach is the main ground for the ascent and descent of the parasail or It is much more
   c) **Platform Parasailing.** In this sort of Parasailing one flies under the winds which are below 5 to 15 mph, away from rough ocean and poor weather conditions and other things close to proximity.
2. Safety tips advised by the Parasail Safety Council
   a) **Licensing.**
   b) **Established Operators.**
   c) **High Winds.** You should avoid parasailing in high wind conditions
   d) **Visibility**. Never go up in rain fog or an approaching storm.
   e) **Passenger Age and Weight Restrictions.** Parasailing is not recommend for individuals under the age of 16 or who's exceeds 300 Ibs.
   f) **Types of Equipment.** Make certain that you get adequate safety briefing prior to your flight This safety briefing should include, a) a description of the activity itself, b) safety procedures in the event of an unexpected emergencies, C)the porper use signals while landing fire or capsizing e) precluding any participant who appears to be afraid or intimidated prior to their aerial excursion.
   g) **Altitude** The recommended altitude for using hand signals and recovery during water landings over Open Ocean is 600 and 300 feet over small lakes bays or sounds
   h) **Ask Questions.** Ask all the right questions How long have you been in business? Do you have Insurance by a licensed Agent in this State? is good flying weather today?
   i) **Release From.** Read the release form carefully before you sign it. Parasailing does have physical requirements, especially in the event of a water landing.

II. Slithering

3. Slithering:-The literal definition of the word slithering is to slide or glide, like a reptile. This can be better explained as descending from a height. It is also known as fast roping. Fast-roping, also known as **Fast Rope Insertion Extraction System** (**FRIES**), is a technique for descending a thick rope. It is useful for deploying troops from a helicopter in places where the helicopter itself cannot touchdown.

4. Equipments for slithering
    a) Rope
    b) Gloves
    c) Helmet & Knee pads

III. Rock Climbing

5. List out safety tips for Rock Climbing
    a) **Always Check Harnesses**. After you've geared up, always check that both the climber's and belayer's harness buckles are doubled back.
    b) **Always Check Knots**. Before you start climbing, always double check that leader's tie-in knot (usually a Figure-8 Follow-Through) is tied right and finished with a backup knot. Also check that the rope is threaded through both the harness waist loop and the leg loops.
    c) **Always Wear a Helmet**. A climbing helmet is essential if you want to live long and prosper. Always wear one when climbing or belaying. Helmets protect your head from falling rocks and from the impact of falling.
    d) **Always Check the Rope and Belay Device**. Before you lead a route, always double check that the rope is properly threaded through the belay device. Also, always make sure the rope and belay device are attached with a locking carabineer to the belayer's harness.
    e) **Always Use a Long Rope**. Make sure your climbing rope is long enough to reach the anchors and lower back down on a sport route or to reach a belay ledge on multi-pitch routes. When sport climbing, if you have any doubt that the rope is too short, always tie a stopper knot in the tail end to avoid being dropped to the ground.
    f) **Always Pay Attention**. When you're belaying, always pay attention to the leader above. He's the one taking the risks of a fall. Don't visit with other climbers at the base, talk on a cell phone, or discipline your dog or kids. Never take the leader off belay unless you are absolutely certain he is tied in and safe and he communicates that to you.
    g) **Always Bring Enough Gear**. Before you climb a route, always eyeball it from the ground and determine what you need to bring. You know best. Don't rely strictly on a guidebook to tell you what to bring. If it's a sport route, verify visually how many bolts need quick draws. If in doubt—always bring more than you think you need.
    h) **Always Climb With the Rope Over Your Leg**. When you're leading, always make sure the rope is over your leg rather than between them or behind one. If you fall with the rope in this position, you will flip upside down and hit your head. Wear a helmet for protection.
    i) **Always Properly Clip the Rope**. Make sure you always clip your rope through carabineers on quick draws correctly. Avoid back clipping, where the rope runs front to back rather than back to front in the carabineer. Make sure the carabineer gate faces opposite your direction of travel; otherwise the rope can come unclipped. Always use locking carabiners on important placements.
    j) **Always Use Safe Anchors**. At the top of a pitch or route, always use at least two anchors. Three is better. Redundancy keeps you alive. On a sport route, always use locking carabineers if you're lowering down to top-rope off the anchors.

IV. Cycling / Trekking

6. What are the safety measures during cycling
   a) Qualified Supervision
   b) Physical Fitness.
   c) Helmets and Clothing
   d) Buddy System
   e) Position in Traffic
   f) Safety Rules.
   g) Turns and Intersections.
   h) Equipment.
   i) Bicycle Accessories
   j) Maintenance.
   k) Racing.
   l) Planning.
   m) Discipline
7. Essential materials for Trekking
   a) A good rucksack in proper condition.
   b) Clothing incl wind cheater, woolens as per your requirements of the stay and season in which trek is going to be done.
   c) Water, food and cooking utensils (if you are going to cook your own food).
   d) Camera and its accessories
   e) First Aid box.
   f) Sleeping Matt or Sleeping Bag.
   g) Oral rehydration solution (ORS).
   h) Rope.
   i) A good pair of shoes.
   j) Cap (preferably of cotton)
   k) Toiletry items.
   l) Torch and batteries.
   m) Marker and chalk.

8. Safety measures for trekking
   a) Before heading for your adventure trekking trip, do study weather forecast of that area.
   b) Do carry multi-pocket carry bag engrafted with zipper closure and cushioned shoulder straps, especially for trekking trips. The bag should be spacious enough to carry all the important trekking essentials while trekking.
   c) Must keep a lighter, Swiss army knife, space blanket, water bottle and winter attire in your carry bag or pocket before heading for trekking.
   d) To prevent insect bite, do wear full sleeves shirts and full pants. Do carry sleeping bag and trekking rope of about 50 meters of length with you.
   e) A direction compass and topographical map is must while trekking in mountains.
   f) An ice cutting axe should always be carried if heading into snowy terrain.

9. What are the points to be borne in mind for a cycle expedition?
    a) Plan a simple, realistic and practical expedition
    b) Physical fitness of all participants
    c) Selection of a safe route
    d) Selection and inspection of equipments/cycles
    e) Tie up halts
    f) Administrative arrangements including food water etc.
    g) Budgeting, Communication
10. Self Confidence and courage qualities are developed in adventure training.
11. Gliding is an Air wing adventure activity.
12. Sailing is a Naval Wing adventure activity.
13. Trekking is Army Wing adventure activity
14. Mention adventure activities done by cadets
    Trekking, Rock climbing, Mountaineering Expedition, Para jumping, Water skiing, Yachting, Gliding/Rafting, Parasailing, Rowing/Rafting Expedition, Cycle/Motor cycle expedition, Parachute jumping, Hang gliding.

8 Environment Awareness & Conservation

I. Natural Resources Conservation & Management

1. Types of Natural Resources. Generally we can classify resources into two. They are
   a) Renewable Resource
   b) Non-Renewable Resource
2. Classification of resources based on origin
   a) Biotic
   b) Abiotic
3. Classification of resources based on their stage of development
   a) Potential Resources.
   b) Actual Resources.
   c) Reserve Resources.
   d) Stock Resources.
4. List out the major effects of unrestricted use of natural resources.
   a) Ozone Depletion
   b) Soil Erosion
   c) Acid Rain
   d) Global Warming
5. Write a short note on Global warming

   Global warming is the increase of Earth's average surface temperature due to effect of greenhouse gases such as carbon dioxide emissions from burning fossil fuels or from deforestation, which trap heat that would otherwise escape from Earth. This is a type of greenhouse effect. The temperature of earth's surface is maintained by carbon dioxide. But if this natural CO^2 level increases, it would raise temperature by 5^0 to 6^0 making survival of life in earth difficult. The Global warming due to CO^2 and green house gases will have following effects:-
   a) Reduction yield of food crops
   b) Rise in level of sea
   c) Increased and unpredictable rainfall.
6. What is green house
   a) Green house effect is the gradual warming of Earth's atmosphere.
   b) This is due to accumulation of atmospheric carbon dioxide and other gases.
   c) We are disrupting the balance of nature with industrial emission, scientists all over the world are worried about the green house effect and global warming may be the result.
7. Methods of management and conservation of Natural Resources
   a) Recycling
   b) Water Harvesting
   c) Afforestation
   d) Proper Waste Management.
   e) Greater Use of Renewable Sources
   f) Avoid Wastage.

g) Increasing Energy Efficiency
h) Monitoring and Control.

8. Role of NCC in conservation of Natural Resources.

II. Water Conservation & Rainwater Harvesting

9. Ways to conserve water indoors
   a) Ensure that there are no leaks in your house, in the pipelines, taps and toilets.
   b) Use water efficient flushes and if possible, toilets with dual flushing systems.
   c) Close taps while brushing your teeth, shaving or soaping your face.
   d) Use water from washing of clothes for cleaning floors.
   e) Use appropriate amount of detergent for washing clothes.
   f) Close the shower tap whilst soaping your body.
   g) When washing dishes by hand, don't let the water run while rinsing.
   h) Monitor your water bill for unusually high use. Your bill and water meter are tools that can help you discover leaks.
   i) Water your lawn and garden in the morning or evening when temperatures are cooler to minimize evaporation.
10. **Types of Rainwater Harvesting**: There are a number of ways to harvest rainwater, ranging from very simple to the complex industrial systems. Generally, rainwater is either harvested from the ground or from a roof. The rate at which water can be collected from either system is dependent on the plan area of the system, its efficiency and the intensity of rainfall.
    a) Ground Catchment Systems.
    b) Roof Catchment Systems.
    c) Subsurface Dyke.
    d) **Groundwater Recharge**. Rainwater may also be used to recharge groundwater where the runoff on the ground is collected and allowed to be absorbed, adding to the groundwater. In India this includes Bawdis and Johads, or Ponds which collect the run-off from small streams in a wide area. In India, reservoirs called tankas were used to store water; typically they were shallow with mud walls. Ancient tankas still exist in some places.
11. Daily change in the air is called weather

III. Waste Management

12. Types of wastes
    a) Solid waste
    b) Liquid waste
    c) Radioactive waste
    d) Municipal Solid waste
    e) Hospital or Bio-Medical Waste.
    f) E-Waste
    g) Hazardous Waste.
13. What steps will you take as an individual for contributing towards waste management in your neighborhood
    a) Segregation of household waste into bio-degradable and non-biodegradable.

b) Reduce use of plastic bags and replace with paper or jute/cloth bags.
c) Recyclable waste such as paper, glass, cloth etc could be segregated and disposed off accordingly.
d) Keep the surroundings of your house and around the house clean. Do not dump waste just outside the house on the road.
e) Colonies could start vermin-composting and natural composting.
f) What is waste for you is wealth for somebody else. There has been a tradition in India of finding an innovative use for everything - tyres, battery cases, plastic bins and what not. Think of reuse of the thing you would like to discard.

IV. Pollution control – Water, Soil, Air and Noise

14. Types of pollution & Causes
    a) Soil Pollution
    b) Water Pollution
    c) Air Pollution
    d) Sound Pollution

15. Measures to control pollution
    a) To develop consciousness among common people to control all pollution. Plant more and more trees.
    b) The use of loud horns or mindless blowing of horns by motor vehicles should be banned.
    c) The water bodies should not be used as waste reservoirs.
    d) Various sources of drinking water, and water resources should be well protected so that dirty water does not enter these water bodies.
    e) Environmental education should be made compulsory in all educational institutions.
    f) Excessive use of pesticides and insecticides should be avoided.
    g) In all towns and cities there should be proper arrangement of dustbins to collect garbage being produced in the houses.
    h) In the factories strict precaution should be instituted to avoid pollution of various types.
    i) Running of old and pollution emitting vehicle should be banned.
    j) The pollution control Administrative Authorities must have independent powers to implement their decisions.
16. What are the major ecological and environmental problems in Kerala?
    a) Resource depletion
    b) Resources pollution
    c) Environmental Damage
    d) Deforestation
17. Water must be purified before it is discharged to lakes

V. Energy Conservation

18. Reasons for increase in energy conservation
    a) Population Explosion.
    b) Migration of Rural Population to Urban Areas
    c) Increased Manufacturing.
    d) Increased Number of Vehicles
    e) Transmission Losses.
    f) Poor Usage Habits of Individuals.
    g) Poor Building Designs.
19. Measures for conserving energy
    a) Energy Saving Building Design
    b) Use of Energy Efficient Equipment / Implements.
    c) Public Lighting.
    d) Usage Habits.
    e) Public Transport System
    f) Energy Efficient Infrastructure.
    g) Preventing Pilferage

VI. Wildlife Conservation Projects in India

20. Major threats faced by the wildlife in India
    a) Decreasing Capacity.
    b) Increasing Fatalities.
    c) Increasing Forest Fires.
    d) Increased Motor Boat Activity
    e) Release of Chemicals/Toxins
    f) Climate Changes.
    g) Increase in Poaching.

21. Food Chain
22. Wildlife conservation measures
    a) Wildlife projects
    b) Expansion of Sanctuary System.
    c) Breeding in captivity
    d) Mass Awareness and Education.
    e) Wildlife Protection Act 1972.
23. Wildlife Projects in India
    a) Project Tiger
    b) Project Elephant.
    c) Project Hangul.
    d) Crocodile Conservation Project.
    e) Project Sea Turtle.
    f) Vulture Conservation in India.
    g) Indo-Russian Cooperation on Migratory Birds

24. Aims of Wild Life Management
    a) Protection of natural habitats through control of exploitation
    b) Maintenance of protected areas like parks, sanctuaries, reserve forests.
    c) Protection through legislation.
    d) Impose restrictions on export of rate plants and animals.
    e) Encourage Non-Government organization to participate in protection of wild life
    f) General awareness among the public
25. The Bharatapur Bird Sanctuary is located in Rajasthan
26. A plant that obtains all parts of its food from other plants Parasites

9 Obstacle Training

1. Write down the names of 10 obstacles of the standard obstacle course which the NCC cadets are required to negotiate.
   a) **Straight Balance**:- It is a wooden plank of 3 inches thickness, 4 inches width and 12 ft in length, which is 1 ½ ft above ground level.
   b) **Clear Jump**: - Its structure is just like a straight beam. This wooden beam is 2 ½ ft from the ground.
   c) **Zig-Zag Balance**:-It is a Zig-Zag a structure of wooden beam 18 ft in length, with 3 inch width and 1 ½ ft above the ground
   d) **High Wall**:-It is a 6 feet high and 12 feet long brick wall with plaster on both sides.
   e) **Double Ditch**: - The obstacle is composed of two ditches each of approximately 6-8 ft in length, 4-5 ft wide and 3-4 ft deep separated by a small gap of approx 9-12 inch.
   f) **Right Hand Vault**:-This wooden structure is 3 ½ ft above the ground and 1 ½ feet long
   g) **Left Hand Vault**:-
   h) **Gate Vault**:-This is a wooden structure which has two beams at height of 3 ft and 5 ft respectively, both 18 ft long.
   i) **Ramp**:-It is a 15 feet long, 18 feet wide and 4 ½ feet high sloppy hillock
   j) **Straight Balance**:-It is a wooden plank of 3 inches thickness, 4 inches width and 12 ft in length, which is 1 ½ ft above ground level.

2. Safety Measures for Obstacle Training
   a) Suitable and physically fit cadets only to be selected.
   b) Training to be given first in PT dress, later on with packs and weapon.
   c) Emphasis to be given on closing of individual timings and later team timings.
   d) (d) Wet and slippery obstacles and area to be avoided.
   e) Obstacles to be done under supervision of qualified instructors and correct technique only to be used.
   f) Arrangement of first aid to be ensured.

3. Benefits of Obstacle Training Course
   a) Ensures physical fitness.
   b) Ensures agility
   c) Ensures mental robustness.
   d) Coordination and balance of mind and body.
   e) Improves risk taking ability.
   f) Evaluating problem solving skills.
   g) Over all team spirit.

Part IV - Special Subjects

1 Armed Forces.

I. Basic Organization of Armed Forces

1. The President of India is the Supreme Commander of all the Armed Forces of the Country
2. The Chief of Army Staff is the head of the Indian Army and is responsible for the command, training, operations and administration.
3. The Head Quarters of Armed Force is located at New Delhi
4. There are **seven commands for Army**. They are
    1) Northern
    2) Western
    3) Central
    4) Southern
    5) South Western
    6) Eastern
    7) Training Command

Navy and Air Force

5. The Naval Headquarters at New Delhi exercises administrative and operational control over the Navy through various "Administrative Authorities". For this purpose the **Navy is divided into three commands**. They are
    1) West Naval Command with HQ at Mumbai
    2) Eastern Naval Command with HQ at Vishakapatnam
    3) Southern Naval Command with HQ at Cochin
6. The Navy has at present two fleets. Each fleet is commanded by Flag Officer of the rank of a Rear Admiral. The two fleets are
    1) The Western Fleet
    2) The Eastern Fleet
7. The staff of Air Headquarters consists of three braches' viz the Air Staff, Administrative and Maintenance branches
8. The Air Force is organized into **Seven Commands**. They are
    1) Western Air Command
    2) Central Air Command
    3) Eastern Air Command
    4) South Western Air Command
    5) Southern Air Command
    6) Training Command
    7) Maintenance Command

II. Basic Organist ion of Army

9. The Preset day Indian Army owes its origin to British days. The Army since independence has taken part in the following major operation in defence of our border. They are
    1) Kashir Operations against Pakistan 1947-48
    2) Sino-Indian Operations in NEFA (Arunachal) and Ladakh 1962
    3) Indo-Pak war 1965
    4) Indo-Pak War 1971
    5) Kargil conflict 1999
10. Name the Fighting Arms
    a) Armuor
    b) Infantry
    c) Mechanized infantry

11. Supporting Arms
    a) Artillery
    b) Engineers
    c) Army Air Defence **(AAD)**
    d) Army aviation Corps **(AAC)**
    e) Signals
    f)
12. Supporting Services
    a) Army Service Corps **(ASC)**
    b) Army Medical Corps **(AMC)**
    c) Army Ordnance Corps **(AOC)**
    d) Corps of Electronics and Mechanical Engineers **(EME)**
    e) Remount and Veterinary Corps **(RVC)**
    f) Army Education Corps **(AEC)**
    g) The Intelligence Corps
    h) The Corps of Military Police **(CMP)**
    i) Judge Advocate General Branch **(JAG)**
    j) Army Physical Training Corps **(APTC)**
    k) The Pioneer Corps
    l) Defence Security Corps

III. Badges and Ranks

13. Comparison of Ranks

Indian Army	Indian Navy	Indian Air Force
Field Marshal	Admiral of the Fleet	Marshal of the Air Force
General	Admiral	Air Chief Marshal
Lieutenant General	Vice Admiral	Air Marshal
Major General	Rear Admiral	Air Vice Marshal
Brigadier	Commodore	Air Commodore
Colonel	Captain	Group Captain
Lieutenant Colonel	Commander	Wing Commander
Major	Lieutenant Commander	Squadron Leader
Captain	Lieutenant	Flight Lieutenant
Lieutenant	Sub-Lieutenant	Flying Officer

VI. Modes of Entry into Army

14. Types of Commission

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. When you opt for "PC", you are basically looking at a permanent career in the Army, a career till you retire. SSC is a wonderful option for all those of you who aspire to serve it for a few years. It gives you the option of joining the Army, and serving it as a commissioned officer for ten years. Once your tenure is over, you are allowed to opt for PC. Alternatively, you can also ask for a four years extension and can choose to resign from your post any time during this period.

a) Ways to get Permanent Commission'
   1. NDA - AFTER 10+2(Through UPSC)
   2. DIRECT ENTRY (Through UPSC)
   3. ENGINEERING GRADUATES - TGC (TGC-Technical Graduate Course)
   4. UNIVERSITY ENTRY SCHEME 10 +2 TES (TES-Technical Entry Scheme)

b) Ways to get Short Service Commission
   1. NON-TECH (Both men & women)
   2. TECH (Both men & women)
   3. NCC SPECIAL ENTRY (Both men & women)
   4. LAW GRADUATES(Both men & women)

15. National Defence Academy (NDA)

    The NDA is located at Khadakwasla near Pune, Maharashtra. It is the first tri-service academy in the world. You can take the NDA entrance exam right after class XI. Clear the UPSC exam and a 5-day Service Selection Board interview pass your medicals, and you are in NDA. Three years in NDA and you will be a much improved person a part from providing graduation digress.

16. **Indian Military Academy Dehradun**

    Indian Military Academy (**IMA**) is the cradle of leadership. The IMA trains you to lead from the front. The motto of IMA is "Valour & Wisdom".

    There are four main entries to get into IMA:-

    1) Combined Defence Service Examination (CDSE)
    2) 10+2 Tech Entry.
    3) University Entry Scheme (Pre Final Year Students Only).
    4) Technical Graduate Course.

17. **Officers Training Academy, Chennai.**

    Once selected for Short Service Commission, you go to the officers Training Academy at Chennai. The selection process is written exam followed by the SSB interview and medicals. For Technical (Engineering) graduates and law graduates if is direct SSB interview and medicals. If you have done NCC Senior Division (Army) and obtained "C" certificate with minimum "B" grade, you can apply through your NCC Branch HQ/Zonal HQ to Recruiting Directorate for direct SSB interview. SSB qualified candidates undergo a medical examination. The duration of training is 49 weeks OTA training provides you with opportunities to broaden your perspective and widen your horizon.

18. What are the duties of armed force during peace?
    a) Internal Security Duties
        I. Maintaining law and order
        II. Controlling Civil Unrest
    b) Assist in Disaster Relief
    c) Search and rescue operations
    d) Safeguard our boundaries
    e) Training for military preparedness.

VII. Honours and Awards

19. Gallantry Awards: Gallantry awards are divided into two

    a) Gallantry in the face of enemy (**Wartime Gallantry Awards**)
        1) Param Vir Chakra
        2) Maha Vir Chakra
        3) Vir Chakra
        4) Sena, Nao Sena and Vayu Sena Medal
        5) Mention in Despatches
        6) Chiefs of Staff Commendation card

b) Gallantry other than in the face of enemy (**Peacetime Gallantry Awards**)

1) Ashoka Chakra (Highest peacetime gallantry award)
2) Kirti Chakra
3) Shaurya Chakra

20. Non Gallantry Awards

1) Bharat Ratna
2) Padma Vibhushan
3) Padma Bhushan
4) Sarvottam Yudh Seva Medal
5) Param Vishisht Seva Medal
6) Padam Shri
7) Sarvottam Jeevan Rakasha Padak
8) Uttam Yudh Seva Medal
9) Ati Vishisht Sena Medal
10) President‟s Police and Fire Service Medal for Gallantry
11) President‟s Police Medal For Gallantry
12) President‟s Fire Service Medal For Gallantry
13) President‟s Home Guards and Civil Defence Medal For Gallantry
14) President‟s Correctional Service Medal For Gallantry
15) Yuddh Seva Medal
16) Vishisht Seva Medal.

21. NCC Awards

1) **Raksha Mantri's Padak**
2) **Raksha Mantri's Prashansa Patra**
3) **Raksha Sachiv's Prashnsa Patra**
4) **Maha Nideshk's Prashansa Patra**
5) **Maha Nideshak's Prashansa Patra to Civilion Personnel.**
6)

22. Order of Precedence for wearing of Medals and Decorations

1) Bharat Ratna
2) Param Vir Chara
3) Ashoka Chakra
4) Padma Vibhushan
5) Padma Bhushan
6) Sarvottam Yudh Seva Medal
7) Param Vishist Seva Medal
8) Maha Vir Chakra
9) Kirti Chakra
10) Padma Shri
11) Sarvottam Jeevan Raksha Padak
12) Uttam Yudh Seva Medal
13) Ati Vishist Seva Medal

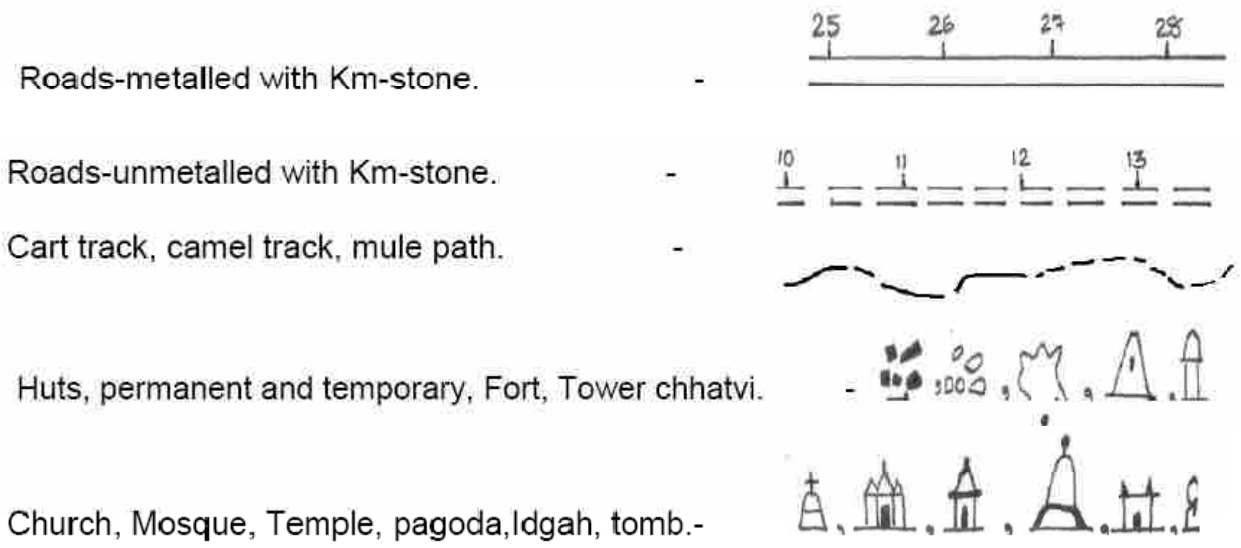
14) Vir Chakra
15) Shaurya Chakra

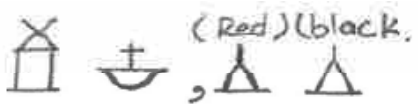
2 Map Reading

I. Introduction to Types of Maps and Conventional Signs

1. Types of Maps
   a) **Atlas Maps**. These are small scale maps showing whole country's continents, oceans or even world on one sheet.
   b) **Topographical Maps**. These are maps with which we are concerned in map reading. Survey of India maps are all topographical maps.
   c) **Relief Maps**. These are solid maps built as an actual model of the ground.
   d) **Outline Maps.** These indicate general plan of the country e.g. main towns and rivers.
   e) **Rail / Road Maps.**
   f) **Photo Maps.** These are produced by making a mosaic of strips of vertical air photographs, so as to cover completely the area required to be shown.
      a. **Other Maps.**
         i. Geographical Maps
         ii. Statistical maps.
         iii. Charts – showing depth of water round the coast and in river estuaries.
         iv. Meteorological maps
2. What are the uses of map?
   a) to find own position
   b) to determine direction from one object to another
   c) to locate various feature of ground on map
   d) to plan move during war.

3. Conventional Sign: **Conventional signs** are symbols used to represent certain artificial or natural features/ objects on the map.

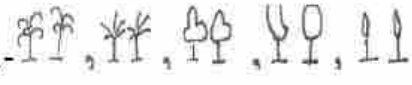


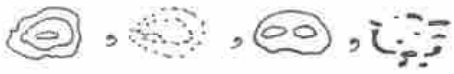
Lighthouse-Lightship-Buoys Bamboo-plantation.- 

Grass high and low cane,Bamboo-plantation. - 

Graves oil wells. Mine-Battle field with year. - 

Heights traingulated, Bench Mark. Δ - 200, BM200

Palms, Areca, palmyra, other conifer,other trees, scrub.- 

Contours, Formlines, Rocky slopes. - 

Light railway or tram way, Telegraph

line. - 

Inspection bunglow, Police station,

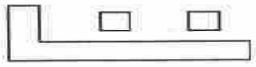
Buddhist Kyaung - IB (Cenal), PS, kg

Post office, telegraph office,

combined office. - PO, TO, PTO

Forest-reserved, state and protected. - RP, SR, PF.

Spring

Village 

II. Scales and Grid System

4. What is scale?

   By scale it means the proportion which the distance between two points on the map bears t the distance between the same two points on the ground.

5. Define Grid Line

   A map is covered with a network of purple lines, some running north and south and others west and east. These form a series of small squares all over the map. These lines are known as Grid Lines.

6. Basic rules for giving Grid Reference.

   In giving a Grid Reference there are four rules to remember:-

   a) A reference must always contain a even number of figures. Normally it contains six figures.
   b) Always count along the EASTING lines first from the WEST to EAST and then from SOUTH to NORTH along NORTHINGS.
   c) 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.
   d) 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.

III. Topographical Forms and Technical Terms.

7. **Topographical terms used in map reading**.

   a) **Basin** - An area of fairly level ground surrounded by hills or the area drained by a river and its distributaries
   b) **Col** or **Saddle** – A narrow ridge of high land joining up to higher hills.
   c) **Crest** - The highest part of a hill or mountain range. It is that line on a range of hills or mountains from which the ground slopes down in opposite directions.
   d) **Dead Ground** – Ground which by reason of undulations or hills is not visible to the observer
   e) **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 a bridge is an example of an artificial defile.
   f) **Escarpment**- The steep hill side formed by a sudden drop in the general ground level usually from a plateau
   g) **Knoll –** A small isolated hill
   h) **Plateau**- A table land, and elevated region of considerable extend generally fairly level.
   i) **Ravine**- A ling deep valley closed at one end and separating two spurs.
   j) **Ridge**- The line along a hill or range of hill or mountains from which water flows in opposite directions.
   k) **Spur**- A piece of high ground jutting out from a range of hills onto lower ground.
   l) **Watershed** – The **line separating the water flowing into two different rivers.**

8. Technical Terms used in Map Reading.

a) **Bearing** - The angle formed by a line joining two points and the North and South line. Bearings are always measured clockwise
b) **Bench Mark**- A permanent mark usually cut into a wall recording exact height for future reference, marked BM with the height on Ordnance Survey Maps
c) **Contours**- A line drawn on the map joining up all points of equal height above sea level
d) **Detail** – All tee Topographical information on a map.
e) **Gradient** - The slope of a hill expressed as a fraction
f) **Grid Lines** - Lines running parallel to and at right angles to a North and South
g) **Grid North** - Except through the origin, grid lines do not lie true North and South or East and West, Grid North is the direction of the North South grid lines on a map.
h) **Horizontal Equivalent (HE) -** The distance measured on the map between adjacent contour lines. It varies according to the nature of the relief.
i) **Magnetic Variation** - The difference between True North & Magnetic North.
j) **Setting** - Placing a map so that North on the map points toward the North so that the objects on the map are placed in relationship to the same objects on the ground.
k) **Spot Height** – A point on a map whose height has been determined by survey methods. The height is printed alongside the point.
l) **Trig Point**- A point fixed during the triangulation at the beginning of a survey, marked on Ordance Survey Maps by a small triangle with the height.
m) **True North** – The direction of the North Pole from the point.
n) **Vertical Interval (VI)** – Successive contour lines. The VI is generally same for any given scale.

9. Explain different kinds of north.
   a) True North – Geographical/north which remain unchanged.
   b) Grid North – North as per the grid lines in the map (Vertical)
   c) Magnetic North – North as per compass needle.

IV. Relief, Contours and Gradients

10. Define Relief.
    Relief is a general term applied to 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.
11. Define Contours.
    A contour is an imaginary line following surface of the ground at a certain level. If you walk around a hill at a certain level, going neither uphill nor down, you will be following the contour for that level.
12. Gradients

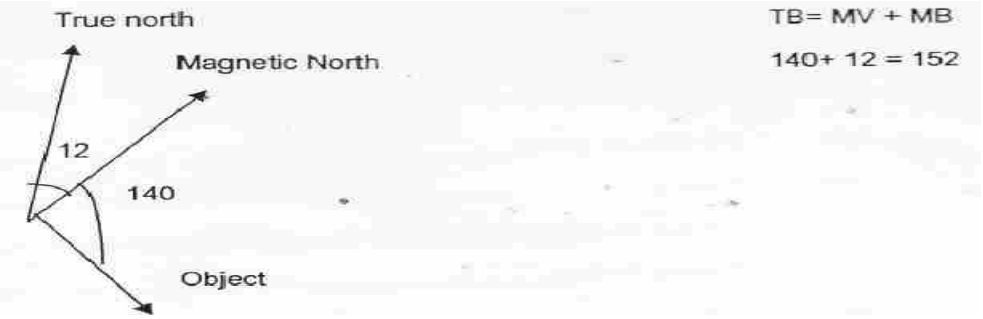
V. Cardinal Points and Types of North

13. What are various types of North?
    a) True North: The direction of North pole from the observer
    b) Magnetic North: It is the point to which a magnetic needle point, when freely suspended
    c) Grid North: It is the direction to which the North South gridlines on a map point.

VI. Types of Bearing and use of Service Protractor

14. Define various 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 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
15. How to convert Magnetic Bearing to a True bearing?
    Suppose the bearing of a certain point P is measured with a compass and is found to be 160 Degrees. First draw a vertical line to represent Magnetic North (because it is a magnetic bearing which is being considered). Next draw a line to P at an angle of 160 degrees. It is only a rough diagram, and the angle can be judged by eye. Thirdly, draw in the true North line approximately 11 degrees East of Magnetic North, with this diagram it becomes clear that true bearing (marked with a dotted line) is smaller by 11 degrees. Therefore, the true bearing of P is 149 degrees
16. How to convert magnetic bearing to a True bearing?
    Measuring with a protractor on the map, the bearing of a Wind Mill at Y from a Church at Xis found to be 120degrees. To convert this grid bearing to a magnetic bearing, draw a diagram as under, this time starting with the Grid North line. Since the magnetic bearing is larger than the grid bearing by 11 degrees and it is therefore 131 degrees.
17. What are the usages of Service Protractor?
    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 correct unto $1/100^{th}$.
    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
18. Calculate the back bearing of 290^0?
    Magnetic bearing 120^0
    Back bearing 120 +180 = 300^0

19. Calculate the true bearing of objects to magnetic bearing is 140 degrees and magnetic variation is 120 degree east of true north.



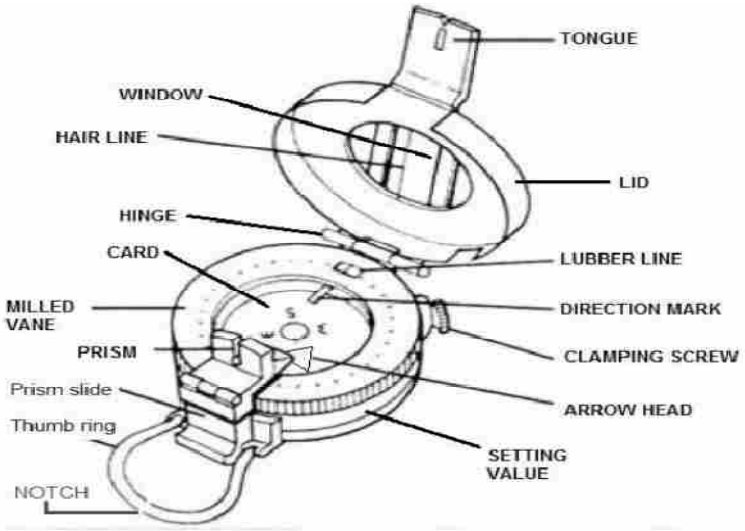
VII. Prismatic Compass and its use and GPS

20. What are the types of compass?

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

21. What are the uses of compass?
    a) To take bearing of the object
    b) To find the North and set a map
    c) To find won position on map
    d) To march particular line to reach particular point

22. Various parts of a compass



23. What is Global Positioning System (GPS)?

    GPS is a system of satellites and receivers that allows people and devices to pin point their precise location on the earth. The normal GPS operational constellation consists of 24 satellites that orbit the earth in 12 hours.

24. **What are the usages of GPS?**

    a) Used by fishermen and hikers.
    b) Used by civilian & para military vehicles to navigate their route.
    c) Used by defence aircrafts, ships and specialized vehicles.
    d) Used in defense in battle fields and insurgency-affected areas
    e) It assists troops to navigate in thick jungles, mountains and deserts.
    f) GPS is also used to guide missiles to pre specified targets.

VIII. **Setting of a Map, Methods of Finding North and Finding Own Position**.

25. How is own position found with the help of a map?
    a) Identify two distant permanent objects on the ground and map. The two objects chosen must not be more than 180 degree or less than 30 degree apart
    b) Measure the magnetic bearing of the identified objects with the help of the compass
    c) Convert the magnetic bearing to grid back bearing
    d) Plot the grid back bearing on the map
    e) Draw two straight lines on the map through the plotted grid back bearing. The pointer section between these lines will be your own position
26. **When a map is considered to be set?**

    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.

27. **What are the various methods to find north?**
    a) Watch method.
    b) By stars
    c) From Idgah & Mosque
    d) From Sun
    e) Compass
    f) GPS
28. Hair Line is part of Compass
29. Dry and Liquid are two types of compass

IX. Map to Ground and Ground to Map

30. What are the methods used to identify objects from Map to ground?
    a) Bearing and Distance Method
    b) Direction and Distance Method
    c) By Estimation Method
31. What is the intersection method of identifying objects from ground to map?
    a) Using Bearing.
    b) Intersection Method.
    c) By Direction Method
    d) By Estimation Method.

X. Point to Point March

32. What is night march?

    When a navigation party moves at night with the help of compass and night march chart, this is called night march

33. What all items are required by navigation party?
    a) set compass as per bounds
    b) Luminous stick
    c) White cloth
    d) Marching Chart
    e) White lime/ Chart
    f) Stone pebbles for measuring steps
    g) Frosted torch

34. What is the composition of navigation party?
    a) Guide – He carries a luminous stick and a compass set to a given bearing
    b) Assistant Guide - He has a white piece of cloth at his back for identification and a stick to measure depth of nala / Pits
    c) Recorder – He carries additional compass already set on given bearing, night march chart and stone pebbles. He measures the distance
    d) Scouts- Number of scouts could be from 2 to 4 depending upon the route and tasks.

35. What points should be kept in mind by all members of navigation party?
    a) while marching do not cough, talk or make any noise
    b) While marching keep inter person distance in mind
    c) Party must ensure safety and security
    d) Smoking/ using any kind of light is strictly prohibited
    e) To read night march chart use frosted torch

3 Field Craft and Battle Craft

I. Introduction to Field Craft and Battle Craft

1. Define Field Craft.
   Field Craft is an art of using the ground and the weapon available to the best of one's own advantages
2. What all subjects are included in Field Craft?
   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. What all subjects are included in Battle Craft?
   a) Field Signals.
   b) Section Formations.
   c) Fire control orders.
   d) Fire and movements.
   e) Section battle drills.

II. Judging Distance

4. Which are the six methods of Judging Distance?
   a) Unit of measure.
   b) Appearance method.
   c) Section average.
   d) Key range.
   e) Halving.
   f) Bracketing.
5. When the distance is over-estimated?
   a) Light is bad.
   b) The sun is in the observer's eye.
   c) The object is small in relation to its surroundings.
   d) Looking through a valley of narrow lane e.g. Street.
   e) Lying down
6. When the distance is under-estimated?
   a) The light is bright or the sun is shining from behind the observer.
   b) The object is large in relation to its surrounding.
   c) There is some dead ground between observer and the object.
   d) Looking up hill.
7. At 250 yards blade of foresight covers a kneeling man.

III. Description of Ground

8. What are the various types of grounds?
   a) **Broken Ground**. It is uneven and is generally interspersed with nullahs, bumps and fields in the ground. It is suitable for move of infantry and hinders observation of activities.
   b) **Flat and Open Ground.** It is even ground with little cover e.g. bushes, hedges and similar foliage. It is not suitable for move of Infantry by day.
   c) **High Ground**. Ground far above the general level of the area e.g. hill. It facilitates domination of area around it by observation or fire or both.
   d) **Dead Ground**. Ground that is hidden from an observer's view. It cannot be covered by flat trajectory weapons.

9. What is the procedure for description of ground?
   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
10. What is the procedure for indication of ground?
   a) **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,
   b) **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 and describe. In attack describe the ground nearest to you first i.e. foreground, then middle and then distance. In defence reverse the procedure.

IV. Recognition, Description and Indication of Landmarks and Targets

11. Define landmarks and targets
   Landmarks. An object, which is prominent on the ground and which is used in verbal orders to explain the ground in front.
   Target. It is an object which is indicated with a view to bring down fire on it.
12. Describe the methods of indication of easy targets.
   a) Indication by Description
   b) Indication by Direction or Rang or Both
13. What are the methods of indicating a difficult target?
   a) Indication by description - general direction indicated
   b) The reference point method - help of prominent land marks
   c) Clock ray method - centre of clock as reference point
   d) The degree method - General direction indicated
   e) Hand span method - an alternative to degree method
   f) Misc method - By firing a burst pointer staff etc.

V. Observation, Camouflage and Concealment.

14. What is the importance of observation and concealment?
    a) A soldier who is trained in both can locate and kill his enemy without being seen himself.
    b) Ground observation of enemy provides one of the most valuable sources of information on which the plans of higher commanders are based.
    c) In defence good concealment enables a defender to mystify and deceive the enemy and in the event of an attack repel the enemy by producing fire at close range from an unexpected quarter.
15. What are the fundamentals for correct use of cover**?**
    a) Whenever possible look through the cover and not over it.
    b) If it is not possible to look through the cover, look round it rather than over it.
    c) It is necessary to look over the cover, avoid breaking straight line.
    d) The sky-line is the worst background you could choose, but if you cannot avoid observing over the cover and against the sky line, use something to break your silhouette.
    e) When firing from inside a building keep well back making use of the shadow.
    f) A rough, dark and irregular background which matches your clothing, provides considerable cover from view.
    g) Isolated cover is dangerous because it will attract attention of the enemy and can be easily indicated in a fire order.
    h) Avoid sky line.
    i) Avoid regular spacing.
    j) Avoid gaps for fire position.
    k) Cross gaps as a body and at irregular interval at the double.
16. Camouflage done for concealment
17. What are the factors that make thins visible?
    a) Shape
    b) Shine
    c) Shadow
    d) Silhouette
    e) Surface
    f) Spacing
    g) Smoke
    h) Sound
    i) Movement
18. Define camouflage and concealment

    Camouflage

    a) Merge with natural colour and surroundings
    b) Always move slowly but with quick actions
    c) Destroy shines
    d) Make use of shadows
    e) Merge with surroundings

Concealment

Concealment is the art of using artificial and natural aids to mystify and deceive the enemy. The main object to defeat the enemy observation.

VI. Field Signals

VII. Section Formation

19. What are the tactical groups of section?
    a) LMG group
    b) Rifle Group
20. Describe section and what are section formations?
    Section is the smallest formation in the Army. Normally is consists 10 members. Section commander will be in the rank of Havildar

    Section Formation

    a) Single file.
    b) File.
    c) Arrow Head.
    d) Diamond.
    e) Spear Head.
    f) Extended Line.
21. 'Scouts' is referred as Lookout

VIII. Fire Control Orders

22. Which are the important terms used in Fire Control Orders?
    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 been considered 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.
23. What is fire control order?
    Fire control orders are given by the fire unit commander to direct and control the fire of the sec.

24. What are the important points which section commander must remember before giving fire control orders?
    a) **Indication**. No fire control order can be effective unless the target is clearly indicated and can be easily recognized by the men of the fire unit.
    b) **Range Visibility and Vulnerability**. It should be considered if the range, visibility and vulnerability of the target justify fire at all. Would it be better to wait and get a more vulnerable or more complete surprise?
    c) **Best Weapon to Use**. What is the best weapon to use, although the LMG is the main weapon of the section, the target may be more suitable for the fire of the riflemen only or for a combination of both weapons.
    d) **Rate of Fire.** Should the fire be in single rounds or in burst. Should it be rapid or at the normal rate? Rapid rate is justified only on a comparatively few occasions when it allows the maximum effect to be gained from surprise when an especially vulnerable target presents itself or to cover move in the final phase of an assault.

25. **What are the important rules for giving out fire control orders?**
    a) The orders should be given clearly, calmly and consciously.
    b) It should be given loudly, so as to be heard over the noise of battle but should not be louder than required.
    c) It must be given as an order, and obeyed as such.
    d) It must be given with adequate pauses, so that those being addressed may have time to take the correct action, for example, there must be time for sight adjustment after the range is ordered. No 1 Section (Pause) 300 (Pause) fire when you see a target.
26. What is the sequence of fire order?

    The suggested code work is 'GRIT' each letter of which signifies stage in fire orders as follows:-

    G -The **Group** of the section which is addressed, that is the LMG group or the whole section. An order starting with 'No 1 Section' indicates that the whole of No. 1 Section will fire. 'LMG-Group or Rifles Group' means that the group named only will fire.

    R -The **Range** to the target. To ensure accuracy of fire and to concentrate attention on a limited area of ground.

    I - The **Indication** of the point of aim by its description.

    T -The **type of fire** to be employed.
27. Which are the different types of Fire Control Orders
    a) Delayed Fire Control Orders.
    b) Full Fire Control Orders.
    c) Opportunity Fire Control Orders.
    d) Brief Fire Control Orders.

IX. Fire and Movement

28. What are the aims of Ambush?
    a) Destroy as many enemy or his vehicle and animal transport as possible
    b) Obtain information at intelligence for example identification and documents.
    c) Harass Hills so that he has to use increasing number of troops on purely protective duties.

X. Knots and Lashings

XI. Section Battle Drill

29. The maximum number of Reece patrol is <u>three</u>

4. INTRODUCTION TO INFANTRY WEAPONS

I. 7.62MM SLR

CHARACTERISTICS OF 7.62MM SLR

1. Calibre - 7.62 mm.
2. **Length**
   - (a) With short butt - 1126.50mm (44.35in).
   - (b) With normal butt - 1139.20mm (44.85 in).
   - (c) With long butt - 1151.90mm (45.35in).
   - (d) Length of rifle with bayonet - 1397.00mm (55 in).
3. **Weight**
   - (a) Rifle only - 4.4 kg.
   - (b) Rifle with full mag - 5.1 Kg.
   - (c) Rifle with full mag and bayonet - 5.392 kg.
   - (d) Bayonet - 0.283 kg.
   - (e) Empty Mag - 0.255 kg.
   - (f) Full mag - 0.709 kg.
5. **Range**
   - (a) Effective range - 275 m (300 yds).
   - (b) Sight range - 200 yds to 600 yds.
6. Sight Radius - 533.40 mm (21.77in).
7. No of Grooves - 06 (Six).
8. Pitch - 1 turn in 304.8mm (12 in).
9. Twist of Rifling - Right Hand.

Amn (Cart SA Ball 7.62mm)

10. (a) Calibre - 7.62mm.
    - (b) Weight of cart - 23.07gm ± 0.65 gm.
    - (c) Length of cart - 71.16mm ± .76mm (2.80-0.03 in).
    - (d) Weight of bullet - 9.33 ± 0.13 gm (144 ± 2 gm).
    - (e) Powder charge - NC Powder.
    - (f) Muzzle velocity - 815m/2700ft ± 30 ft/S (at 27.43m(90ft from muzzle).
    - (g) Wt of cart case - 10.89 gm.
    - (h) Wt of propellant charge - 2.85 gm.
11. **Rate of Fire**
    - (a) Normal - 5 rds per min.
    - (b) Rapid - 20 rds per min.
    - (c) Faster than rapid - 60 rds per min.
12. System of operation - Gas operation.
13. Mag capacity - 20 rds.

Cleaning Material

(i) Pullthrough. (ii) Oil bottle.
(iii) Combination tool. (iv) Gas regulator key screw driver.
(v) Cylinder/Chamber cleaning brush. (vi) Rifle cleaning brush.
(vii) Graphite grease tube. (viii) Chindi.

Names of Six parts of SLR 7.62 mm rifle

Bayonet, Bayonet steed, Sling and sling side fore sight, for sight protector, Boltray Barrel, charger guide, bridge charger guide, magazine, Magazine catch, Trigger safety catch, safety catch spring, Back sight, Butt plate.

II. 5.56MM INSAS RIF

CHARACTERISTICS OF 5.56 INSAS RIF

1. Calibre - 5.56mm.
2. Length of Rifle without bayonet - 960mm.
3. Length of Rifle with bayonet - 1110mm.
4. Length of Barrel - 464mm.

5. **Weight**
   (a) Fixed butt with empty mag - 3.6 kg.
   (b) Fixed butt with loaded mag - 3.69 kg.
   (c) Empty mag - 90 gms.
   (d) Full mag - 340gm.
   (e) Bayonet - 305 gm.

6. **Effective Range - 400 mtr.**
7. Sight Radius - 470mm.
8. Muzzle velocity - 900m/s.
9. Principle of operation - Gas Op.
10. Penetration - 3mm at 700m.
11. Mode of fire - Single shot & three round burst (TRB).

12. **Rate of Fire**
   (a) Normal - 60 rds/min.
   (b) TRB (Three Round Burst) - 90 rds/min.
   (c) Intense - 150 rds /min.
   (d) Cyclic - 600 to 650 rds/min.

12. Types of Ammunition 5.56 INSAS can fire
   (a) Ball Rd.
   (b) Tracer Rd.
   (c) Blank Rd.
   (d) HD Cart.

13. What is the full form of **INSAS**
   Indian Small Arms System

14. Items required for **cleaning of 5.56mm INSAS Rifle**

(a) Oil bottle with oil.
(b) Brush cleaning bore.
(c) Brush cleaning chamber.
(d) Pullthrough.
(e) Rod cleaning barrel.
(f) Tool adjusting for sight / rear sight.
(g) Tool removing repair case.
(h) Chindi.
(j) Drift.

III. 7.62MM LIGHT MACHINE GUN (LMG)

CHARACTERISTICS OF LIGHT MACHINEGUN (LMG)

1. Calibre - 7.62mm.

2. **Weight** -
   (a) Gun IA - 9.242 Kg.
   (b) Gun IB - 9.185 Kg.
   (c) Gun IC - 9.865 Kg.
   (d) Barrel Assembly - 2.721 Kg.

3. **Length**
   (a) Gun - 1130mm (44.45 inch).
   (b) Barrel Assembly - 621.25mm (24.25inch).
4. No of Grooves - 06 (Six).
5. Pitch of rifling - Turn in 304.8mm.
6. Twist of rifling - Right Hand.
7. **Type of Sight** -
   (a) Fore sight - Adjustable blade type.
   (b) Back Sight - Aperture graduated.
8. Sight Radius - 744.447 mm.
9. Sight range - 200 to 2000 yds.
10. System of operation – Gas

11. **Rate of Fire**
   (a) Normal - 28 rds (One mag) per min.
   (b) Rapid - 112 rds (four mag) per min.
   (c) Cyclic - 450 – 500 rds per min.

12. **Effective Range**
   (a) On bipod - 500 yds.
   (b) On tripod - 1000 yds.

13. **Magazine**
   (a) Type - Box type.
   (b) Capacity - 30 rds.
   (c) Being filled - 28 rds.

(d) Weight empty - 396.89gms.
(e) Weight filled - 1.106 kg.

14. **Mounting Tripod**
    (a) Weight - 13.6 Kg.
    (b) Height with legs spread- 26.5 inch.
    (c) Traverse - 21° right to left.
    (d) Elevation - 19°.
    (e) Depression - 42°.
15. LMG can be stripped in to five main groups
16. Which are the Rifle parts not to be oiled?
    a) Barres
    b) Cylinder gas
    c) Plug extension assembly
    d) Mag Platform site
17. What is the sequence of immediate action in all cases of stoppage in weapon?
    a) Cock the gun
    b) Change the magazine
    c) Aim and fire
18. What are the types of 2 inch mortar bombs?
    a) HE – High Explosive
    b) SMOKE
    c) Signals
    d) Parachute
    e) Sand filled bowls

6. Military History

1. Biography of Indian Historical Leaders

a) Chhatar Pati Shivaji

- Shivaji was born at Pune
- A study of Chhatrapathi Shivaji clearly brings out that by all standards he was a great and unique Military General of Indian history
- There have been very few Nilitary leaders in the history of Mankind who can match his genius as a guerilla leader
- He enforced strict discipline in his Army by sitting personal example before his men.
- Simple living
- Maintenance of Discipline

b) Maharana Pratap

- **……**
- **……**

c) Akbar the Great

- Akbar was born in Oct 1542 as sib if Humayone
- He was the ruler of Mughal Empire from 1556 to1605
- Akbar is said to have been a benevolent and wise ruler. He won the love and affection of subjects.
- Akbar Nama is the Biography of Akbar
- Din-I- Illahi is the new religious faith begun by Akbar

d) Lt Gen Tikka Khan

- Lt Gen Tikka Khan was known as the Butcher of Bangladesh

e) Field Marshal SHFJ Manekshaw

- Sam Hormisji Framji Jamshedji Manekshaw was born on 03 April at Amritsar
- His father Captain Hormisji Framji was a medical officer with British Indian Army during World War-I
- He was commissioned into the British Indian Army from the first course from Indian Military Academy in Feb 1934
- In World War-II he was in Burma front where he was seriously injured and evacuated. He was awarded Military Cross for his act of gallantry.

2. Famous battles of India
   1. Indo Pak War 1971
   2. Kargil War

3. Write any five sectors of J&K
   a) The Ladakh Sector
   b) The Kargil Sector
   c)The Rajauri Sector
   d) The Chhamb Sector
   e) The Jammu Sector

4. Kargil War

The Kargil War Often termed `the Fourth War' Kargil war was a war with a difference. Pakisthan Army along with militants trained in Pakisthan launched an attack on India in May 1999 across the 520 long line of control in the Kaargil sector. The battle lasted for more than ten weeks. A series of fundamental factors appear to have propelled Pak towards the fourth war for J&K. These may be summed up as :-

(a) Continuing ideological conflict with India.
(b) Deepening a self perpetuating belief of Kashmir being the core issue and the unfinished agenda of partition.
(c) Tension in the internal power structure of Pak.
(d) Deep desire to take revenge against India for previous defeats.
e) The military aggressive ethos.

The Kargil conflict was different to the usual hostilities across the LOC. Earlier each spring Pak intensified the cross border firing to facilitate infiltration, but there was no physical occupation of Indian territory. The Kargil episode was entirely different in that it involved the intrusion of regular Pak troops across the LOC, interspersed with mujahideen of Pak and other foreign origin. They succeeded in occupying and fortifying a number of critical locations on the Indian side of the LOC

- Kargil conflict was fought between India and Pak in 1999
- Pak occupied – large areas of Indian territory in Kargil by infiltrating soldiers in civil clothes
- This provocation forced India to launch a firm but limited operation to evict the intruders
- Indian Army and Air force operated with effect of co-ordination
- The primary aim of India is Military action was regain the ground without enlarging the scope of the conflict
- The last of the intruders evicted by 26 July 1999.

Reason for War

The three possible reasons underlying Pak's attempt to internationalize the Kashmir issue are as under:-

a) Internal Situation in Kashmir.
b) Declining Global Support for Kashmir.
c) Nuclear Capability and the Strategic Environment.

5. What are the types of War?

a) **Asymmetric warfare**
b) **Biological warfare**
c) **Chemical warfare**
d) **Civil war**
e) **Conventional warfare**
f) **Cyber warfare**
g) **Nuclear warfare**
h) **Total war**
i) **Unconventional warfare**
j) **War of aggression**

6. What are the main causes of war?
   a) Physiological
   b) Geographical
   c) Demographical
   d) Difference in opinion.

5. Communication

I. Types of Communications. Advantages and Disadvantages

1. Write down various types of communication.
   a) Line Communication
   b) Radio Communication
2. What are the advantages and disadvantages of Line Communication?

   Advantages

   a) Reliable and practically free from electrical interference
   b) Relatively secure
   c) Number of circuits and message carrying capacity is more but limited only by availability of material and manpower

   Disadvantages

   a) Vulnerable to physical interference and enemy interception along the entire length
   b) Takes time to construct
   c) Inflexible once it is laid
   d) Expensive in men and material
3. What are the advantages and disadvantages of Net Radio?

   Advantages

   a) Is vulnerable only at terminal and is therefore reasonably protected from enemy action except by direct hit.
   b) Is very flexible, can be rapidly re-arranged in the event of regrouping
   c) Is rapid in establishing communication.
   d) Can work on the move although range obtained will be much less than when stationary
   e) Is economical in personnel equipment

   Disadvantages

   a) Is inherently insecure and susceptible to enemy interception which necessitates the uses of codes and ciphers with a consequently 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.
4. What are the advantages and disadvantages of Radio Relay?

   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) Is vulnerable physically only at terminal.

f) By its ability to employ multichannel equipment radio relay provides more teleprinter circuits over one link than can normally be provided over the average field cable. Thus it has much greater traffic handling capacity.

Disadvantage

a) Liable to interception and hence insecure. Has relatively greater security than netradio, dep ending upon the siting 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 reasonable suitable to get a â€˜quasi optical pathâ€™, this presents difficulty in siting.
d) Location of terminal and intermediate stations may not suit tactical layout and may, therefore, create additional protection requirements.
e) Cannot work on the move.
f) Slightly more expensive in men and material than in the case of net radio.
g) Needs critical siting

II. Communication Media

5. What are the various transmission lines?
   a) Parallel Wire type
   b) Coaxial type
   c) Wave Guide type
6. What are the various types of propagation of waves and explain each in brief?
   a) **Ground Wave Propagation**. Used for long and medium waves, limited range is 30 Kms.
   b) **Sky Wave Propagation**. Used for HF range up to 30 MHz communication, range is 100 km to 1000 Kms. These make use of ionosphere layer existing to a height of 150 -200 kms from the surface of earth.
   c) **Space Wave Propagation**. The propagation of VHF and UHF frequency takes place in straight lines. The range is limited by curvature of earth and so distance between two neighbouring station is approx 50 Kms.
   d) **Tropospheric Scatter Propagation**. Also known as tropo scatter or fwd scatter propagation, extended height up to 8-10 Kms from the surface of earth.

III. Characteristic of Walkie Talkie – Radio Set GP 338 Motorola

7. What are the facilities available in Radio Set GP 338 Motorola?
   a) It is portable and light in weight.
   b) Can be operated easily.
   c) It can be operated in VHF/UHF and 2 way simplex mode.
   d) 128 channel of this radio set can be preset into 8 zone.
   e) 16 channels can be preset into single zone
   f) Frequency of this radio set can be programmed in 25 KHz channel space with the range of 12.5 to 20 KHz.

g) Option of selective call facilities available
h) .
i)

III. Latest Trends and Developments

8. What are the latest trends in communication?
   a) Tropo-scatter
   b) Modem
   c) Fax
   d) Telex
   e) Satellite
   f) Optic fiber communications
   g) Computer system
   h) Internet
   i) Cell phone
   j) Multimedia
   k) Videophone
9. **Name various types of satellites?**
   a) Weather Satellite.
   b) Scientific Satellite.
   c) Communication Satellite.
   d) Navigational Satellite
   e) Military Satellite
10. **What are the advantages and disadvantages of optic fibre Communication**

    Advantages
    a) It has wide band width carrying different types of info from low speed voice signal to high speed computer data.
    b) Less power requirement.
    c) Small cable size.
    d) No repeater station required.
    e) No electromagnetic interference

    Disadvantages

    a) Jointing problem.
    b) Channel dropping not possible.
    c) More expensive
11. What are the advantages and disadvantages of computer system?

    Advantages
    a) Speed of process and calculations.
    b) Accuracy of process and calculation once the programme is proved.

c) Persistence- It will continue on the same job until the end, always working in the same way each and every day.
d) Mass storage of data.
e) The ability to handle large volume of data.

Disadvantages

a) Data loss if machine malfunctions.
b) Back up hard data still required to be maintained.
c) Constant power source is required

12. What are the advantages of cell phone?
    a) More subscriber and traffic capability.
    b) No perceptible difference between mobile and fixed subscribers.
    c) Better quality of service.
    d) Miniaturization using very large scale integration (VLSI) technology which enables ever decreasing size and weight of the hand set.
    e) Higher speed of data exchange.
    f) Can be used in an integrated mode with computer network.
13. Information Technology

    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. Computers, as we all know, have been in existence for over 50 years. For many of these years, they had been primarily used for information processing. It is well known that year-by-year; computers are becoming more and more powerful both in terms of their computational speeds and also their capacities for storing of data. 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, which largely explains why the internet and the WWW have begun to play such a significant role in our use of computers.