

National Cadet Corps (NCC)



STUDY MATERIAL

National Cadet Corps (NCC)



The formation of the **National Cadet Corps (NCC)** under the NCC Act, 1948 was a major milestone for the development of the student community. With its motto of "**Unity and Discipline**", the NCC has become instrumental in molding the character and imparting in our students a dynamic outlook during their school and college education.

AIMS OF NCC

- **TO DEVELOP CHARACTER, COMRADSHIP, DISCIPLINE, LEADERSHIP, SECULAR OUTLOOK, SPIRIT OF ADVENTURE AND THE IDEALS OF SELFLESS SERVICE AMONGST THE YOUTH OF THE COUNTRY.**
- **TO CREATE A HUMAN RESOURCE OF ORGANISED, TRAINED AND MOTIVATED YOUTH, TO PROVIDE LEADERSHIP IN ALL WALKS OF LIFE AND ALWAYS AVAILABLE FOR THE SERVICE OF THE NATION.**
- **TO PROVIDE A SUITABLE ENVIRONMENT TO MOTIVATE THE YOUTH TO TAKE UP A CAREER IN THE ARMED FORCES.**

FOUR CARDINALS OF DISCIPLINE

**Obey with a smile
Be punctual
Work hard and without fuss
Make no excuses and tell no lies.**

Motto of NCC

" Unity and Discipline"

Common – Syllabus

| Ser No | Subject | Description | Total Periods |
|--------|----------------------|--|---------------|
| 1 | The NCC | Aim, Objective of NCC Organization of NCC and NCC song Incentives | 2 |
| 2 | National Integration | Nation state, National Interest and objectives Indian History and Culture Religions, traditions and customs of India National Integration and its Importance Unity in Diversity Contribution of Youth in Nation Building | 7 |
| 3 | Drill | <p><u>Foot Drill</u> General and word of command Attention, stand at ease and stand easy, turning and inclining at the halt Sizing , forming up in three ranks and numbering, open and close order march and dressing Saluting at the halt, getting on parade dismissing and falling out Marching, length of pace and time of marching in quick time and halt, slow march and halt. Side pace, pace forward and to the rear Turning on the march and wheeling Saluting on the march Marking time, Forward march and halt in quick time Changing step Formation of squad and squad drill</p> <p><u>Drill with Arms</u> Attention, stand at ease and stand easy Getting on parade with rifle and dressing at the order Dismissing and falling out Ground/take up arms Present from the order and wise-versa Gen Salute, Salami Shastra Squad drill Short/long trail from the order and vice-versa Examine arms</p> <p><u>Ceremonial Drill</u> Ground mounting Guard of Honor Platoon/Coy drill Instructional Practice</p> | 15 |
| 4 | Weapon Training | Characteristics of a rifle/ rifle ammunition and its fire power Stripping, assembling, care and cleaning and sight setting Load, cocking and unloading The lying position and holding Trigger control and firing a shot Range procedure and safety precautions Aiming II alteration of sight Theory of group and snap shooting Short range firing Characteristics of 7.62mm SLR and 5.56mm INSAS | 14 |

| | | | |
|--------------|-------------------------|--|-----------|
| 5 | Leadership | Values/code of ethics, Perception Communication including inter personal communication Motivation Discipline and duties of a good citizen Leadership traits, Types of Leadership Character/personality development Effects of leadership with historical examples Customs of services Importance of a Group/Team work | 10 |
| 6 | Disaster Management | Civil defence organization and its duties Types of emergencies/Natural disasters Fire fighting Traffic control during disaster under police supervision Essential services and their maintenance Disaster management during Flood/Cyclone Disaster management during earthquake Setting up of relief camp during Disaster management Assistance in removal of Debris Collection and distribution of Aid material Messenger service | 6 |
| 7 | Social Service | Weaker section of our society and their needs Basics of social service and its need Drug trafficking and crime Contribution of youth towards social welfare Family planning Causes of HIV AIDS Prevention of HIV AIDS Contribution of Youth towards Prevention of HIV AIDS What is cancer and What are its causes Early detection of cancer and its prevention measure | 10 |
| 8 | Health and Hygiene | Structure and functioning of the human body Hygiene and sanitation Preventable diseases Physical and mental health First aid in common medical emergencies Fractures, types and treatment Dressing of wounds Yoga introduction and exercise Evacuation of casualties | 6 |
| 9. | Adventure Activities | Introduction to parasailing equipment Parasailing Trekking | 3 |
| 10. | Environment and Ecology | What is environment? What is Ecology? Conservation of environment and ecology Pollution and its control Forest ecology and pollution Wild life | 3 |
| 11 | Self Defence | Vulnerable parts of the body Prevention of untoward incidents Physical self defence /UAC | 3 |
| 12. | Posture Training | Posture training and its importance Anatomy and Relationship of Body segments Analysis of good posture Causes of Bad posture and remedial and preventive measures Balanced alignment and exercises Balanced Diet Correct standing and Exercises Correct walking and Exercises Correct use of body in motion | 5 |
| Total | | Total (70% of total 120 periods) | 84 |

The NCC

Aim: To acquaint cadets with the NCC

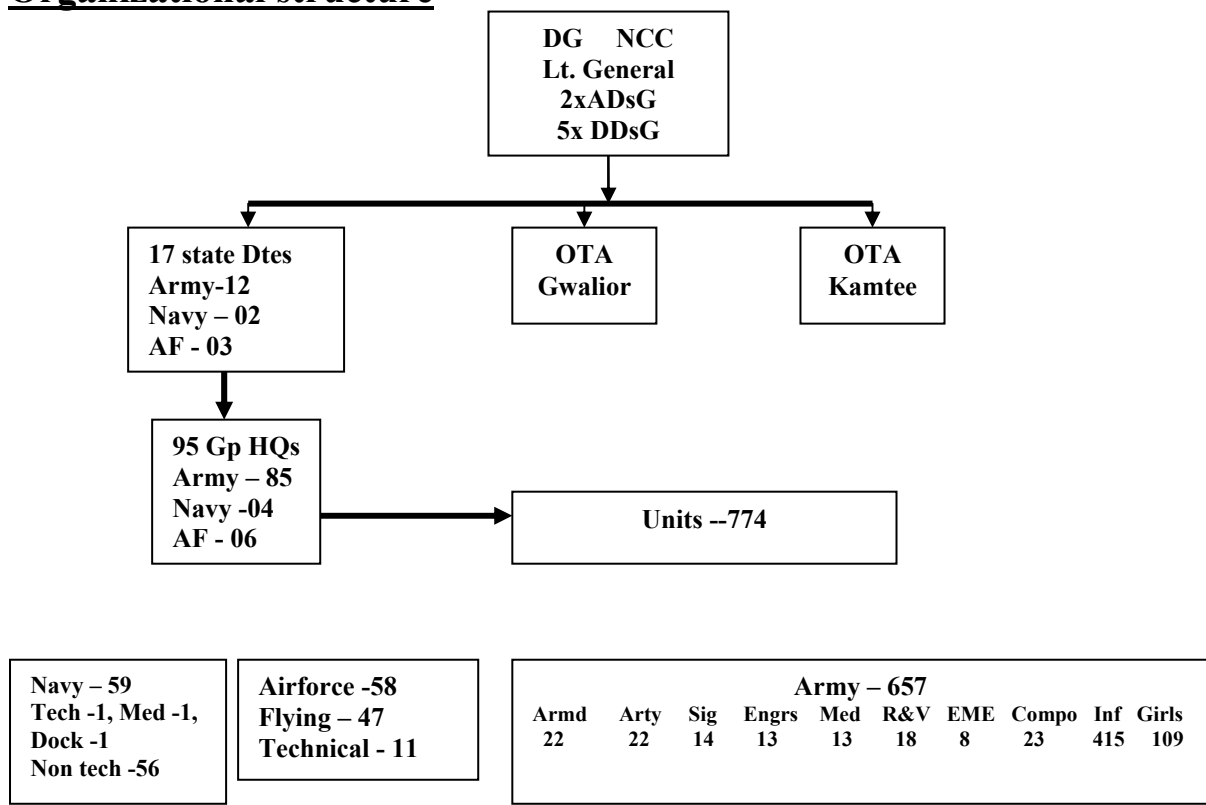
Scope: Introduction and general Information about NCC

Aim of NCC

- To develop character, comradship, discipline, leadership, secular outlook, spirit of adventure and the ideals of selfless service amongst the youth of the country.
- To create a human resource of organised, trained and motivated youth, to provide leadership in all walks of life and always available for the service of the nation.
- To provide a suitable environment to motivate the youth to take up a career in the armed forces.

NCC Organisation

Organizational structure



- Director General (DG) NCC :.....
- Deputy Director General (DDG) – Karnataka and Goa Dte:
- Group Commander(GC) - Bangalore-A Group:.....
- Commanding Officer(CO) - 1 Kar Signal Regiment NCC:.....
- Administrative Officer (AO)- 1 Kar Signal Regiment NCC:.....
- Associate NCC Officer (ANO) of your Company :.....
- Sub Major (Senior JCO)- 1 Kar Sig Regt NCC:

NCC Activities.**1. Institutional Training****2. Camp training****3. Adventure Activities**

Cycle/ Motor Cycle Expedition, Sailing Expedition, Para Jumping/Sailing, Gliding, Riding Expedition
Scuba Diving, Trekking, Yatching, Mountaineering

4. COMMUNITY DEVELOPMENT PROGRAMME CUM Social Service Activities

Tree Plantation , Blood Donation , Community Development Program, Adult Education,
Awareness about Non Curable diseases. Eye donation and Anti Dowry pledge, Assistance in traffic
control, construction of Bridges, Repair of Roads, Anti tobacco campaign, Anti leprosy Program ,
Environment awareness program

5. Motivational talks**6. Life saving Courses. etc****Fill in the Blanks**

- SUPREME COMMANDER OF DEFENCE FORCES.
- CHIEF OF ARMY STAFF.
- CHIEF OF NAVAL STAFF.
- CHIEF OF AIR STAFF.
- C-IN-C, STRATEGIC FORCES COMMAND.
- CHIEF OF INTEGRATED DEFENCE STAFF.

Ranks in Senior Division & Senior Wing Cadets :

- Senior Under Officer (one in a Company)
- Junior Under Officer (three in a Company)
- Company Sergeant Major (one in a Company)
- Company Quarter Master Sergeant (one in a Company)
- Sergeant (three in a Company excluding the CSM and CQMS)
- Corporal (ten in a Company)
- Lance Corporal (fifteen in a Company)
- Cadet

BADGES OF RANKS: ARMY (NCOs)

LANCE NAIK



NAIK



HAVILDAR

COY QUARTER
MASTER HAVILDAR

COY HAVILDAR MAJOR



REGIMENTAL QUARTER MASTER HAVILDAR



REGIMENTAL HAVILDAR MAJOR

BADGES OF RANKS: ARMY (JCOs)

NAIB SUBEDAR



SUBEDAR



SUBEDAR MAJOR

BADGES OF RANKS: ARMY (Officers)

LIEUTENANT



CAPTAIN



MAJOR



LT COLONEL



COLONEL



BRIGADIER



MAJ GENERAL



LT GENERAL



GENERAL

NCC SONG

Hum Sab Bharatiye Hain, Hum Sab Bharatiye Hain (2)

Apni Manzil Ek Hai, Ha, Ha, Ha, Ek Hai, Ho, Ho, Ho, Ek Hai.
Hum Sab Bharatiye Hain. Hum Sab Bharatiye Hain. (2)

Kashmir Ki Dharti Rani Hai, Sartaj Himalaya Hai,
Sadiyon Se Hamne Isko Apne Khoon Se Pala Hai
Kashmir Ki Dharti Rani Hai, Sartaj Himalaya Hai,
Sadiyon Se Hamne Isko Apne Khoon Se Pala Hai

Desh Ki Raksha Ki Khatir Hum Samshir Utha Lenge, Hum Samshir Utha Lenge.
Bhikre-Bhikre Tarey Hain Hum Lekin Jhilmil Ek Hai,
Ha, Ha, Ha Ek Hai, Ho, Ho, Ho Ek Hai.

Hum Sab Bharatiye Hain. Hum Sab Bharatiye Hain. (2)
Apni Manzil Ek Hai, Ha, Ha, Ha, Ek Hai, Ho, Ho, Ho, Ek Hai.
Hum Sab Bharatiye Hain. Hum Sab Bharatiye Hain.(2)

Mandir Gurudware Bhi Hain Yahan Aur Masjid Bhi Hai Yahan
Girja Ka Hai Ghadiyal Kahin Mullah ki Kahin Hai Ajaan
Mandir Gurudware Bhi Hain Yahan Aur Masjid Bhi Hai Yahan
Girja Ka Hai Ghadiyal Kahin Mullah ki Kahin Hai Ajaan

Ek Hi Apna Ram Hai, Ek hi Allah Taala Hai, Ek Hi Allah Taala Hai, Rang Birange Deepak
Hain Hum, Ek Jagmag Ek Hai . Ha, Ha, Ha Ek Hai, Ho, Ho, Ho Ek Hai.

Hum Sab Bharatiye Hain. Hum Sab Bharatiye Hain. (2)
Apni Manzil Ek Hai, Ha, Ha, Ha, Ha Ek Hai, Ho, Ho, Ho, Ek Hai.
Hum Sab Bharatiye Hain. Hum Sab Bharatiye Hain.(2)

NATIONAL INTEGRATION

Aim: To teach and motivate cadets to contribute towards nation building.

Scope: The concepts of nation state, national interests, objectives and integration, unity in diversity and cultural heritage of India

What is National Integration ? What are the methods to remove the factors hindering National Integration in India ?

The process of creating and strengthening the feeling of national unity is called National Integration. The methods to remove hindrances (something or someone that makes it difficult for you to do something) are :-

- (a) The education system should be improved and the students should be taught the lesson of secularism, toleration and mutual respect.
- (b) The illiteracy should be eradicated as early as possible.
- (c) The economic disparity should be narrowed.
- (d) The political parties should not be formed on the basis of religion.
- (e) Every citizen should be taught to respect the National language, the National Flag, the National song and participate in National festivals.
- (f) We should keep the neighborhood clean and beautiful.
- (g) To develop ideal citizenship.
- (h) To promote social equality.
- (j) To arrange National Integration camp.

Write the aims of National Integration Camp ?

The aims of National Integration Camp are :-

- (a) Create awareness amongst the youth of diverse cultural heritage of our country.
- (b) To foster national integration despite cultural, religious, geographical and environmental barriers.
- (c) To gain experience, to live, co operate and work in harmony with cadets of other states who they have not known before.
- (d) To help in personal growth of cadets.

What are the factors which led to the growth of Indian Nationalism ?

The factors which led to the growth of Indian Nationalism are :-

- (a) Religions, social and cultural renaissance.
- (b) Influence of western education and literature
- (c) Influence of modern means of transport and communication.
- (d) Influence of Indian press and literature.

What are the geographical factors which influence the defence of India ?

The geographical factors are :-

- (a) Himalaya in the North of India
- (b) Deserts on western borders
- (c) Arabian sea in the west cost of India
- (d) South Indian Ocean
- (e) Bay of Bengal in the east
- (f) Plains of Punjab

Name the following :-

- | | | |
|--|---|-----------------------|
| (a) Nightingale of India | - | Sarojini Naidu |
| (b) First Home Minister of India was | - | Lal Bahadur Shastri |
| (c) First Indian Astronaut | - | Sqn Ldr Rakesh Sharma |
| (d) First Indian who swam across English Channel | - | Mihir Sen |
| (e) First Field Marshal of Indian Army | - | SHEJ Manekshaw |

Fill in the blanks.

- (a) The discriminatory feelings of an individual against other on the basis of caste and religion is called **Communalism**.
- (b) Quit India movement was launched on **Jul 14, 1942**.
- (c) Army day is celebrated on **15th Jan**
- (d) Present Chief of Army Staff is
- (e) Highest civilian award is **Bharat Ratna**.
- (f) **Punjab** is called land of five rivers.
- (g) Arabian sea along **West** coast of India
- (h) **Nehru literacy award** awarded for outstanding contribution to promotion of adult literacy.
- (i) Kaziranga National park is in **Assam**.
- (j) NCC Song is written by **Sri Mudgalaya**

Answer the following questions

- Name five major rivers of our country.
- Indian woman who went in space shuttle is _____.
- First Indian to fly in space is _____.
- Bharat Ratna Award winner for is _____.
- Rajiv Gandhi Khel Ratna Award winner for the year is _____.
- Individual gold medal winners at recent Olympics :.....
- Name the Nobel prize winners of India.
- Name the capitals and the classical dances of the following :-
a. Tamil Nadu b. Orissa c. Andhra Pradesh d. Kerala e. Manipur
f. Uttar Pradesh
- Name the four important mountain ranges of our country.
- India is the _____ largest in the world (Military)
- Name any four neighbors of our country.
- Who was the Indian Army chief during Bangladesh war?
- Expand the following :-
a. ASC b. EME c. MES d. AOC e. AEC f. AMC
- India tested its Nuclear explosion at _____.
- The name given to Indian troops who moved to Srilanka is _____.
- Where are the following located :-
a. NDA b. OTA c. IMA d. RIMC
- Write down the names of the following with decorations, if any :-
a. DG NCC b. DY DG NCC c. GP Cdr 'A' GP – Bangalore
d. GP Cdr 'B' GP – Bangalore e. COAS f. Chief of Air staff
g. CNS h. President of India i. Governor of Karnataka
j. CAS k. Vice-president of India.
- Name the North-Eastern states of India and their capitals.
- Name the main religions of India, their major festivals and holy places.
- National Integration includes : (any six points)
- Name any five factors which enhance National Integration.
- First battle of panipat was fought in the year _____
- Second battle of panipat was fought in the year _____
- Vasco-De-Gama landed in India in _____ at Calicut.

DRILL

Aim: To inculcate a sense of discipline, improve bearing, smartness, and turn out and to develop the quality of immediate and implicit obedience of orders.

Scope: All important basic aspects of drill including ceremonial drill, drill with arms and words of command

Two Parts of word of command are: -Cautionary, -Executive.

Explain Savdhan:

- Heels together forming 30 degree,
- Knees straight,
- Body erect,
- Chest lifted and curved,
- Shoulders square falling equally,
- Arms hanging straight down,
- Head erect, chin vertical, eyes straight to the front,
- Weight of the body resting equally on the heels and toes.

Some commands:

- Savdhan (attention),
- Vishram (stand at ease),
- Aram se (stand easy),
- Dahine/Bahe/Pichhe Mur (right/left about turn),
- Adha Dahine/Bahe/Pichhe Mur (inclining),
- Khuli line chal (open order march),
- Nikat line chal (closed order march),
- Dahine saj (right dress),
- Visarjan (dismiss),
- Line tor (fall out),
- Tez chal (quick march),
- Tham (halt),
- Dahine/Bahe ghoom (right/left wheel),
- Qadam Taal (mark time).

Difference between Visarjan and Line tor:

Visarjan: *Indicate 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 ; *For leaving the squad temporarily *Salute is not given

In tez chal (quick time march):

*Length of pace-----30 inches *Paces in the minute---180 *Distance covered-----100 yards

Angle formed at the heels in Savdhan: 30 degrees.

Distance between the feet in Vishram--- 12 inches/foot

Generally, during march, on which feet any command is started: -Left

Saluting at the march: -Dahine salute -Bahe salute -Samne salute

What is inflection: -Inflection is the rise and fall of voice in word of command.

Aim of drill?

- To make the man physically fit.
- To obey order in correct way
- To aid disciplinary action
- To raise the moral of troops.

Rate of steps/minute slow march, normal march and march in quick time?.....70, 120 and 180 steps

What is the aim of the drill? Write the things to be followed prior to proceeding for drill ?

The aim of the drill is to inculcate discipline, improve bearing, smartness in appearance, turnout, self confidence and to develop qualities of team spirit obedience in the cadets. The things to be followed prior to proceeding for drill are :-

- (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.

How many parts does a word of command consist of ? What are they ?

The word of command is divided into two parts. (a) Cautionary (b) Executive

Write the paces in a minute to the following :-

- (a) Slow Time - **70**
- (b) Quick Time - **120**
- (c) Double Time - **180**

Fill in the blanks.

- (a) In Vishram left foot is taken **6"** high.
- (b) **Rank** is a straight line formed by a few persons standing side by side
- (c) The strength of Guard of honour for the President is **150** cadets stand in three rows.
- (d) General salute is given to **Maj Gen & above**.
- (e) The number of persons detailed for guard mounting in quarter guard is **2+6**

Answer the following questions

1. What is the aim of drill?
2. What are the essentials of a good word of command ?
3. What is the length of pace and number of pace per minute for :
 - a) Tez chal b) Dhire chal
4. What is the difference between 'Visarjan' and 'Line Tor' ?
5. How many parts, word of command consist of ? What are they ?
6. Give the length of pace in minutes :-
 - a) Slow time b) Quick time c) Double time.
7. The strength of guard of honour for the following will be :-
 - a) President b) Vice president c) Others.
8. Translate to Hindi :- a) Stand at ease b) About turn c) Eyes right d) Right turn e) Stand easy.
9. The distance between heel to heel in 'Vishram' position is _____
10. In 'Tej chal' the length of one pace is _____
11. While on 'Tej chal' there are three types of saluting. They are _____, _____, _____
12. The word of command for temporary rest is _____
13. 'Bagal Shastra' is completed in _____ movements.
14. In 'Tej chal' , the number of steps taken per minute is _____
15. The distance between two persons when forming in rank is _____
16. In 'Dahine Mur' you turn to _____ degrees to _____ (Left/Right)
17. In 'Vishram' position , the distance between the toe to toe (Feet) is _____
18. The angle formed by the feet in 'Savdhan' position is _____ degree
19. Word of command 'Tham' is given on _____ foot.
20. The strength of guard during guard mounting is _____
21. The 'Adha Dahine Mud' the squad turns _____ degrees.
22. In 'Tej Chal' the distance between the cadets is _____
23. In 'Dahine saj' , the squad takes a step forward by _____ inches.
24. What are the characteristics of word of command ?
25. _____ is the basic movement of drill.

WEAPON TRAINING

Aim: To give elementary knowledge about .22/SLR/5.56 INSAS

Scope: Basic knowledge about rifle and firing

What are the basic essentials of a good firer ?

The basic essentials of a good firer are :-

- (a) Correct Holding (H) (b) Correct Aiming (A) (c) Correct Trigger Operation (T)

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

What are the various positions to be taken while firing ?

The following 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

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

Define the terms ?

- (a) Trajectory (b) Line of Sight (c) Angle of descent
(d) First Catch (e) First Graze

- (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.

Expand the following :-

- (a) MPI (b) SMC (c) LMG (d) SLR (e) DP
- (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

Fill in the blanks :-

- (a) The weight of LMG with bipod is **9.2 Kg**
(b) The length of 0.22 “ Deluxe rifle is **43 inches**
(c) Effective range of 7.62 mm Bolt action rifle is **275 mtr**
(d) The chindi size of SMC for oiling is **4” x 2”**
(e) The muzzle velocity of SLR is **2700** ft/second.

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

The effective range of .22 Rifle is **25 yards.**

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")

What parts of a rifle are stripped and cleaned?

The various parts of a rifle are stripped and cleaned in the following sequence:-

- (a) Barrel
(b) Bolt
(c) Bayonet and Scabbard
(d) Chamber
(e) Magazine

The back sight leaf of .22 rifle has all even numbers from 2 to 20 marked on it and there is a **marking** for odd numbers between two numbers.

On the back sight leaf marking 2 indicates 20 meters range and 20 indicates 200 meters range.

The 7.62mm rifle can fire effectively up to 300 yards.

The basic weapon of an infantry soldier was 7.62mm SLR and now it is 5.56mm rifle.

The magazine capacity of 7.62mm SLR is 20 rounds.

The muzzle velocity of 7.62mm SLR is 27ft/Sec.

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

When the back sight of 7.62mm SLR rifle is pulled back completely, it indicates a range of 200 yards.

The back sight has 3 to 6 figures marked on its bed, which indicates a range from 300 yards to 600 yards.

The weapon used for close range is **sten machine gun**.

A soldier can accurately fire with sten machine gun up to 100 yards

The rapid rate of fire of 7.62mm SLR rifle is 20 rds/minute.

The rapid rate of fire of LMG is **three** magazines per minute.

The cyclic rate of fire of LMG is 450 to 550 rounds per minute.

The beaten zone of LMG at 1000yards is 115x4yards.

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

The size of the chindi used for cleaning LMG Barrel is 4"x3" and for cleaning the cylinder 4"x4" chindi is used.

The back sight leaf of LMG has numbers from 2 to 20 marked on it. The odd numbers are marked on the **right** side and the even numbers on **left** side of the leaf.

There is no marking for 50 yards in LMG however the range up to 50 yards can be put by adjusting the slide **between two numbers**.

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

The battle effective range of sten machine gun is 30 yards due to its low **Muzzle Velocity**.

The sten machine gun is an automatic weapon and is operated by **blow back** action.

CHARACTERISTIC of 0.22rifle:

Calibre-0.22inch
 Weight-6lbs
 Length-43inch
 Off range-25yards

Characteristic of SLR:

Calibre-7.62mm Offrange-300yards Length-45inch
 Weight-9lb Magazine capacity-20rounds

What is Lumber UP?

A practice to achieve perfect co-ordination between eye, brain and target. Remove magazine, no round in the chamber, aim and press the trigger at on.

Size of Chindi for cleaning and oiling the riffle?

4" x 2" , 4" x 1.5"

Bore of Rifle, LMG mark-I/II , SLR and Sten?

0.303" , 0.303" , 7.62mm , 9mm

Normal rate of firing of Rifle and LMG?

5 rounds and 28 rounds

Name any three fighter aircraft of Indian Airforce.

MIG, Jagwar, Hunter

Answer the following questions

- Basic essentials of a good firing or shooting are ?
- Write the full form of the following :-
 - MPI
 - SMC
 - LMG
 - SLR
 - DPBF
 - MMG
 - RCL
 - CQBW
- What are the following and for what they are used ?
 - Bicat strip
 - Smoke candles
 - Tracer rounds
 - Drill cartridges
 - Pull through
 - Tripod
 - Scabbard.
 - Slings
 - Blank rounds
 - Filler
- Write sequence of action for stripping a rifle.
- Write in point form why a group is formed in firing and why bullets do not pass through the same hole.?
- What are the major parts in which an LMG can be stripped ?
- What are the materials required for cleaning a rifle ?
- What are the points do you ensure for correct lying position ?
- The five major factors affecting the bullet inside the barrel are :- ?
- Name any five parts of Sten Machine Carbine.
- The LMG can be stripped into five major groups. Name them.
- What is half cock? How is it caused and remedied.?
- What are the causes of stoppages in rifle?
- Name various parts of the Rifle .22 No2M IV bolt action
- Explain briefly : a) Aiming b) Half cock.
- What are the major characteristics of Rifle No 1 MK III ?
- The battle effective range of SMC is _____
- The barrel of Rifle is cleaned with patch of flannelette (Chindi) measuring 6"x4" (True /False)
- The barrel of Rifle is oiled using 4"x5" patch of flannelette (True/False)
- SMC fires only one round at a time (True/False)
- The change lever of LMG has three positions (True/False) – Ans :- Safe, Repeat, Automatic
- Name any five parts of a .22 Rifle.

23. Effective range of LMG on tripod is _____
24. _____ rounds are filled in the LMG Magazine.
25. The weight of Rifle (without Bayonet) is _____
26. Grouping Fire is carried out from _____ metres.
27. The effective range 7.62 mm SLR is _____
28. The muzzle velocity of SLR is _____
29. Grouping fire is carried from _____ position.
30. The size of chindi to clean a rifle is _____ and for oiling is _____.
31. The cyclic rate of fire per minute for a LMG is _____ to _____ rounds.
32. The weight of a SMC is approximately _____ Kgs.
33. The magazine capacity of LMG is _____ rounds.
34. Rifle 7.62 mm AZ 1
Calibre _____, Weight with bayonet _____, Normal rate of fire _____, Rapid rate of fire _____, Magazine capacity _____ rounds.
35. Light Machine Gun (LMG): Effective range with Bipod _____, Effective range with Tripod _____, Rate of fire (slow _____, Rapid _____, Cyclic _____)
36. Answer in one or two sentences each : a) Trajectory b) Axis of Barrel c) Danger space
37. Battle effective range of 7.62 mm rifle is _____
38. The magazine capacity of 7.62 mm rifle _____ rounds.
39. The battle effective range of 7.62 mm LMG is _____ yards on bipod.
40. The caliber of .22 rifle is _____ mm or _____ inches, Weight is _____, Normal rate of fire is _____ rounds per minute , rapid _____ rounds per minute, Effective range _____ yards (killing range).
41. The pull through has _____ loops.
42. In immediate action during firing in LMG the following are done :-
a) _____ b) _____ c) _____
43. What points do you ensure for correct lying position ?
44. The allowance in front of the target given for aiming and firing is termed _____
45. What is line of sight ?
46. Combination tool is used to _____

LEADERSHIP

Aim: To develop leadership qualities in cadets.

Scope: Basic Subjects with emphasis on leadership.

FILL IN THE BLANKS

One can be a good citizen of more than **ONE COUNTRY** at a time.

A good citizen is one who knows his **RIGHTS & DUTIES**.

Custom helps in developing the **SPIRIT-DE-CORPS** and **PRIDE** in one's service.

It is customary to salute the **NATIONAL FLAG**, when it is being hoisted or hauled down at Reveille and RETREAT.

When the National Anthem is being played, all will stand in **ATTENTION**.

COLORS are symbolic of the **SPIRIT** of a regiment.

It is a matter of **HONOR** that the regiment would not let their colors fall.

All infantry regiments, with the exception of **RIFLE REGIMENTS** carry colors.

The colors are awarded to a regiment by the **PRESIDENT**.

Define 'citizen'.

A member of the community who owes allegiance to the state and who enjoys protection and the rights granted by the constitution of the country is called as a 'citizen'.

Briefly explain as to the ways in which the citizen ship of India can be acquired?

- a) **By birth** –Persons born in India are Indian citizens.
- b) **By descent**- Children born of Indian citizens living in foreign countries acquire Indian citizenship.
- c) **Immigration**-Immigrants from Pakistan at the time of partition.
- d) **Registration**- By registration and living in India for a period of 5 years.
- e) **Nationalization**-A person who applies for citizenship, by fulfilling certain conditions like residence, appointment in service of the state, purchase of land or marriage with an Indian citizen if the govt. of India gives a certificate to that effect.

Briefly define five duties of a citizen.

- a) To abide by the constitution and respect its ideals and institutions.
- b) To protect and upheld the sovereignty, unity and integrity of India.
- c) To defend the country and render national service when called upon to do so.
- d) To promote harmony and the spirit of common brotherhood amongst all the people of the country.
- e) To safeguard public property and abjure violence.

Define 'Duty'.

To obey God's orders as a Moral /Legal obligation and a binding force of what is right and behavior towards the Nation, Organisation, Superiors, Colleagues and Subordinates

Define 'Discipline'.

“To obey man's orders as issued by rightful authority is Discipline”

Discipline is the individual or group's attitude, which ensures prompt obedience to the orders and invocation of appropriate action in the absence of orders.

Discipline implies aiming at perfection. Discipline ensures that men work in a controlled body giving immediate and implicit obedience.

What are the main traits of a leader?

- | | | |
|------------------|---------------|-------------|
| a) Bearing | e) Endurance | i) Judgment |
| b) Courage | f) Enthusiasm | j) Loyalty |
| c) Dependability | g) Initiative | |
| d) Discipline | h) Integrity | |

Write short notes on 'Bearing'.

Bearing implies

- 1) Creation of favorable impression.
- 2) Upright carriage and appearance.
- 3) Condition of clothing and equipment.
- 4) Alertness and energy in actions and movements.
- 5) High personal conduct at all times.

Appearance and manner must depict competence and confidence. The impact on the general public is a gauge of his professional prestige.

Write short notes on 'Courage'

The ability to make decisions promptly and announce them in a clear and forceful manner is known as 'Courage'. Courage also means the ability to accept own shortcomings. Both physical and moral courage is necessary.

Write short notes on 'Dependability'.

Proper performance of duty. Reliance in carrying out actively, intelligently and willingly the orders of superiors is known as dependability. In other words, the ability of the person to carry out an order once given, despite his reservation is known as 'Dependability'.

Write short notes on 'Endurance'

The mental and physical stamina measured by the ability to withstand pain, fatigue, stress and hardship is known as 'Endurance'. It is similar to courage and implies the ability to stick to a job and see it through.

Write short notes on 'Enthusiasm.'

Enthusiasm implies

- a) Showing sincere interest and zeal in performance of duties.
- b) Working with cheerful and optimistic attitude.
- c) Determination to do a good job.

Write short notes on 'Initiative'.

The capacity to do what is to be done even in the absence of orders is known as 'Initiative'. This implies an ability to avoid inactivity or passive acceptance of an unsatisfactory situation.

Write short notes on 'Integrity'.

Integrity implies

- a) The uprightness of character.
- b) Soundness of moral principles.
- c) Quality of absolute truthfulness and honesty.

A man of integrity is accepted, believed, trusted and befriended by all.

Write short notes on 'Judgment'.

The quality of logically weighing facts and possible solutions and taking sound decisions based on that is known as 'Judgment'

It implies

- a) Being impartial.
- b) Consistent in exercising command.
- c) Rendering rewards and meting of punishments in accordance with the merits of the case.
- d) Good professional knowledge of the subject.
- e) Good understanding of the subordinates.

Write short notes on 'Loyalty'.

The ability to deal with others without creating offence and with consideration for the feelings of others is known as loyalty. It means sticking to a principle/acquaintance through thick and thin. It involves loyalty to the seniors as well as to the subordinates. It involves a good understanding of human nature.

Define man-management. What is its aim?

Man management is defined as the "Creation and Maintenance of an efficient and contended unit".

The aim of man-management is to make men mentally and physically fit for the battle, during the battle and after the battle. It involves keeping everyone happy and under proper control. This results in greater efficiency.

Why is man-management essential in N.C.C.?

Man management is essential for maintenance of an efficient and contended unit.

In N.C.C. the resources being meager and the cadets being young and untrained in the N.C.C. Activities, proper management is very essential.

Write the important aspects of Man-management.

- 1). Always recognize the desire to be important in others.
- 2). Do not fail to recognize the good work done by others.
- 3). Take real interest in the problem of others.
- 4). Avoid argument.
- 5). Look at the problem from the other man's point of view.
- 6). Allow rest after fatigue and recreation at the end of the day's work.
- 7). Promotion should be made strictly on merit.
- 8). Always try to maintain a healthy atmosphere.
- 9). Address a man by his name.
- 10) Set the example
- 11) Keep your subordinates well informed
- 12) Be impartial, fair and friendly but never be familiar with juniors

What are the various measures for improvement in officer like conduct?

1. Study the requirement of the role of officers
2. Know your role
3. Self analysis
4. Improvement of qualities that were unutilized.
5. Developing physical fitness and bearing.
6. Intellectualism- developing all the knowledge and skills required.

7. Demonstrations/ discussions
8. Sincere practice to overcome weaknesses and shortcomings.
9. Carry out reappraisal from time to time
10. Be approachable

What are the various factors that affect duty and discipline in NCC

- | | |
|-----------------------------------|--|
| 1) Individual's own state of mind | 6) Less emphasis on NCC by institutions/ parents |
| 2) Ambition | 7) COY commander's/ senior's attitude |
| 3) Self respect | 8) State/ quality of training imparted |
| 4) School and college atmosphere | 9) Peer pressure |
| 5) NCC COY/BN atmosphere | 10) Communication problems |

Mention the fundamental rights

- 1) Right to equality
- 2) Right to freedom of religion
- 3) Right against exploitation
- 4) Cultural and educational rights
- 5) Right to constitutional remedies
- 6) Right to buy, keep and dispose off property
- 7) Right to freedom of speech and expression
- 8) Right to assemble peacefully without arms.
- 9) Right to freedom of movement throughout India
- 10) Freedom to reside in any part of the territory of India

Mention the fundamental duties

- 1) To abide by the constitution and respect its ideals and institutions, the national flag, the national anthem and the national emblem
- 2) To cherish and follow noble ideals which inspired our national struggle for freedom
- 3) To uphold and protect the sovereignty, unity and integrity of India
- 4) To defend the country and render national service when called upon to do so.
- 5) To promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities.
- 6) To renounce practices derogatory to the dignity of women.
- 7) To value and preserve the rich heritage of our composite culture.
- 8) To protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for all living creatures.
- 9) To develop the scientific temper, humanism and the spirit of enquiry and reform.
- 10) To safeguard public property and to abjure violence.

Name your favorite military leader and give 10 reasons why you have chosen him as your favorite.

Name two of your favorite military leaders of modern India and write short notes on them.

What are the principles of Leadership ?

The principles of Leadership are :-

- (a) Know your self and seek self improvement
- (b) Know your subordinates and look after their welfare
- (c) Keep your subordinates informed
- (d) Train your subordinates
- (e) Make sound & timely decisions
- (f) Develop sense of responsibility
- (g) Employ your command in accordance with its capabilities

What are the methods of developing leadership qualities ?

- (a) By reading, by observation
- (b) By talking and discussion
- (c) By attending training camps

- (d) By giving responsibility
- (e) By arranging tours
- (f) By identification

What are the methods of inculcating Duty and Discipline in NCC cadet ?

- (a) ANO should himself be dutiful. Through NCC training
- (b) Organisation of camps
- (c) Appointment and promotion of cadets
- (d) Motivation
- (e) Moral-lectures
- (f) Institute fair and impartial system of Award/Punishment

What are the good duties of a good citizen ?

- (a) Primary duty 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) High character
- (f) Care and protection of Government property
- (g) A good citizen considers rights of others

What are the factors affecting duty and discipline in NCC ?

- (a) Individual own state of mind
- (b) Ambition
- (c) Domestic family and private life
- (d) Self respect
- (e) School/College atmosphere
- (f) Battalion atmosphere
- (g) Associate NCC Officer's attitude
- (h) College Principal's attitude
- (j) Facilities of ground, training stores etc.

What are the principles of Administration ?

- (a) Responsibility of each person is clearly defined and understood by all persons in organisation.
- (b) Authority should be delegated as far down the line as possible.
- (c) Two way channels of communications are maintained
- (d) The organisation should be flexible so that it can be adjusted to changing conditions.
- (e) Everyone in organisation should know to whom he reports and who reports to him.
- (f) The number of levels of authority should be kept at minimum
- (g) Supervision is an essential part of administration
- (h) Evaluation of results
- (j) The work of every person in an organisation should be evaluated at proper time.
- (k) Morale of staff is important than highly developed rigid formal organisation.

Define the following styles of leaderships :-

- (a) Autocratic (b) Democratic (c) Laizafaire
- (d) Citizen (e) Duty

- (a) **Autocratic.** Leaders carry out decision through fear, threats, punishment, penalties.
- (b) **Democratic.** Leader will involve subordinate style in decision making.
- (c) **Laizafaire.** Leader will entrust entire decision making authority to subordinates.
- (d) **Duty.** Duty may be defined as moral/legal obligation and binding force of what is right and behaviour towards superior colleague and subordinates.

Answer the following questions

1. Name the TEN important qualities of a leader.
2. Define Man management. Name any six important aspects of Man management.
3. What are the duties of the good citizen. ?
4. What are the ways of acquiring citizenship ?
5. What is Leadership ?
6. What are the main traits of a Leader, enumerate them.
7. Name your favorite military leader and give 10 reasons why you have chosen him as your favorite.
8. What are your personal weak points ? Write down in points form ,measures to improve leadership qualities in yourself.
9. Define Citizen. Explain the qualities of a good citizen.
10. Define Duty.
11. Define Discipline.
12. What are the cardinals spelt out by DGNCC.
13. Name any five Customs / Traditions of services being observed by the Army.
14. Discipline is of two types i.e., _____ and _____.
15. In the Army _____ and _____ represent fighting arms and _____ and _____ represent services.
16. Write down the Aims of NCC.
17. Write down or outline the organization of NCC GP HQ 'A' – Bangalore ?
18. Write short notes on :-
 - a) Decorations and Medals.
 - b) Paying compliments to ladies.
 - c) Colours.
19. Write shorts on the following Leadership Traits :-
 - a. Courage. c. Initiative. d. Loyalty. f. Decisiveness.
 - b. Enthusiasm. d. Tact. e. Dependability.
20. To obey god's order delivered by conscience, that is _____ to obey man's orders as issued by rightful authority that is _____.
21. Duty may be defined as a _____ obligation and a binding force of what is _____ and _____ towards superiors, colleagues and subordinates.
22. A Leader should be hardworking and courageous. (True/False)
23. A Leader should have plenty of money. (True/False)
24. A Leader should be concerned over the safety of his men/followers. (True/False)
25. A Leader need not set an example. (True/False)
26. A Leader should work without worrying about awards and rewards. (True/False)
27. You are walking to your college and there is just five minutes left. A bus knocks down a cyclist, is badly hurt. What will you do ? (Give the cyclist First Aid, take him to nursing home / hospital)
28. On a cold winter night, there are some threatening sounds in your neighbour's house at midnight. There may be thieves . What will you do ? (Switch on all your lights and telephone the police)

Disaster Management

Aim: To train cadets in helping the civil administration in performance of selected duties during Occurrence of National Disasters

Scope: Basic information about civil defence organization and its duties, maintenance of essential services and providing assistance to civil administration in various types of emergencies during national disaster

What is Civil Defence ? What are the aims of Civil Defence ?

Civil defence is defence of citizen by the citizen i.e civil defence is a measure adopted by civilian population, Government local self bodies and the voluntary organisation etc during the war to minimize the effect of enemy action on men and material.

The aims of Civil Defence are :-

- (a) To save life
- (b) To minimize damage to property
- (c) To up hold morale of people
- (d) To maintain internal security

What are the various Civil Defence services ?

- | | |
|---------------------------|-----------------------------|
| (a) Head quarter service | (b) Warden's service |
| (c) Fire fighting service | (d) Casualty service |
| (e) Communication service | (f) Corpse disposal service |
| (g) Training service | (h) Rescue service |
| (j) Welfare service | (k) Salvage service |
| (l) Supply service | |

What are Home guards ? Write its classification ?

Home guards is voluntary force, assist police in controlling civil disturbances & communal riots. According to nature of the duties on place and working Home Guards are classified as :-

- (a) Urban wing (b) Rural wing (c) Border wing (d) Women's wing

Answer the following questions

1. what is the Civil Defence ? What is its aim ? Name any six Civil Defence services.
2. What are the various modes of spread of Fire ?
3. What is the necessity of Civil Defence ?
4. Write short note on restorative measures.
5. What are the measures that are taken to reduce the effects of enemy air-attack ?
6. The main advantages of portable fire extinguishers are :- ?
7. Name the Civil Defence measures. Write short note on any one of them.
8. What are the roles assigned to Home Guards ?
9. Name the different types of Fire fighting equipments used .
10. What are the elements essentials for combustion ?
11. The risk of air-raid casualties could be reduced by taking adequate care such as :-

| | | | |
|----|----|----|----|
| a) | c) | e) | g) |
| b) | d) | f) | h) |
12. What are the categories of fire fighting equipment/appliances.
13. The controller of Civil Defence in district is _____.
14. Name any 7 services performed under civil defence task.

15. What is Fire ? write short note on extinguishing a fire.
16. Briefly explain the modes of extinguishing fire .
17. What are the types of Air-Raid messages ?

How NCC cadets can help the local authorities during war/emergency ?

- (a) Cadets can boost morale of population by contradicting various rumors that keep on spreading.
- (b) Cadets can assist the medical team by doing first aid.
- (c) Cadets can manage and control communication by doing signals.
- (d) Cadets can supply food, ration etc.

Give types of services, which cadets can provide to maintain essential services ?

- (a) Operation of telephone exchange
- (b) Traffic control.
- (c) To give first aid & help to hospital staff.
- (d) Maintain various records.
- (e) Cadets belonging to ITI can provide skilled hand help.

How does NCC cadet help local authority during National Calamities such as earth quake, flood etc ?

- (a) First aid
- (b) Evacuation of casualties
- (c) Food & clothes distribution
- (d) Maintenance electrical lines and communication
- (e) Disposal of wounded & dead
- (f) Arrangement of shelters
- (g) Maintenance of various data

Answer the following questions

1. The types of Aid sought by civilian authority from the Army are :-
2. Name the various natural calamities (or any Civil disturbance). Write NCC cadets role during the same.
3. Name any five essential services where aid can be given by Armed forces during aid to civilian authorities.
4. State True/False :
 - a) Minimum force should be employed while dispersing an unlawful assembly.
 - b) When firing on an unlawful assembly the aim is to kill.
 - c) Live ammunition is used while dispersing an unlawful assembly.
 - d) The composition and strength of the military force to be employed is determined by the military commander.
 - e) A written requisition by appropriate civil authority to the military commander for the employment of the force is mandatory requirement.

SOCIAL SERVICE

Aim: To teach cadets the values and skills involved in providing voluntary social service to the weaker sections of society

Scope: Understanding of social service and its need, knowledge about the weaker sections of our society and their requirements, about NGOs and contribution of youth towards social welfare.

What is Social Service ? What are aims and objectives of Social Service ?

The selfless service to the society is known as Social Service.

The aims and objectives are :-

- (a) To teach the cadets the dignity of labour
- (b) To create awareness in them about creative work
- (c) To set an example of selfless service
- (d) To inculcate them with team spirit
- (e) To give a lead in organised work with a view to utilizing the maximum possible extent the available unused time, energy and other resources of our people and direct them in various fields of social and economic activity

What are the major social activities done by NCC Cadet ?

The major social activities are :-

- | | |
|---|-------------------------------|
| (a) Blood donation | (f) Tree Plantation |
| (b) Adult literacy | (g) Work is Cheshire home |
| (c) Anti dowry drive | (h) Eye donation |
| (d) Anti leprosy drive | (j) Construction of roads etc |
| (e) Anti drug drive | (k) Environmental programme |
| (l) Help in natural calamities such as flood earth quake etc. | |
| (m) Environmental programme | |
| (n) Help in natural calamities such as flood , earth quake etc. | |

What are the basic social problems in our country ?

The basic social problems in our country are :-

- (a) Social inequality
- (b) Communalism
- (c) Lack of housing
- (d) Caste System
- (f) Literacy and ignorance
- (g) Eradication of Polio family planning, leprosy, malaria
- (h) Inequality between men and women

How does NCC cadet establish rapport for getting participation of people in welfare work ?

- (a) NCC unit should identify a village preferably within the environment
- (b) To unit study problems of people and then motivate to solve their problem
- (c) People must be convinced about the benefit of work

What are the main reasons for not practicing family planning in India?

The main reasons are mainly old customs and beliefs. Ex: -

- (b) Children are the gift of the god.
- (c) The No. of children are determined by the god and not by parents.
- (d) Every Hindu must have a son.
- (e) Children are wealth.

What does family welfare refer to?

It refers to the practice that help individuals or couples to gain following objectives: -

- (a) To avoid unwanted births.
- (b) To bring about wanted births.

- (c) To regulate intervals between pregnancies.
- (d) To control the time at which birth occurs in relation to the age of the parent.
- (e) To determine the number of children in the family.

What is the modern concept of family welfare ?

Family welfare is not merely birth control, it includes: -

- (a) Proper spacing and limitation of births.
- (b) Advice on sterility.
- (c) Education for parenthood.
- (d) Screening for diseases related to the reproductive system. Ex: Cancer of Cervix.
- (e) Parental counseling.
- (f) Marriage counseling.
- (g) Pregnancy tests.
- (h) Services for unmarried mother.
- (j) Service of adoption.

Answer the following questions

1. List out the National level problems. (Major Social problems of our country)
2. How will you plan & organize the social service to be rendered at an 'old age home' by NCC cadets.?
3. What is social service ?
4. What are the factors to be borne in mind before planning a social activity ?
5. Name any five social activities where NCC cadets can take part.
6. Explain what do you understand by Adult literacy ?
7. Briefly explain how will you organize Tree plantation in your locality ?
8. Briefly discuss the methods undertaken for community development.
9. What are the duties of an individual as per traditions in our country ?
10. You are an under officer , you have been tasked by your CO to undertake Adult Education Programme. Enumerate the sequence in which you will proceed with your task.
11. Your Battalion was tasked to collect clothes for cyclone victims . Name five important points to keep in mind while doing so as senior cadet.
12. What kind of civil activities you can undertake during social service camps ?
13. As NCC cadets what type of social service/ community development programmes can you conduct, Briefly explain them.
14. The minimum age limit for Blood donation is _____ years, while minimum weight is _____ Kg.
15. Traffic control by NCC cadets should be in non-peak hours (True/False)
16. Blood donation makes a person weak (True/False)

Working voluntarily in an 'Old age home' is a social service (True/False)

HEALTH AND HYGIENE

Aim: To make cadets aware about important aspects of health and hygiene.

Scope: Basic information about the human body, maintenance of health, hygiene and sanitation, preventable diseases and rendering of first aid.

Define the term Health. Enumerate the basic factors that keep a person healthy ?

Health is defined as a state of complete physical, mental and social well being and not merely absence of disease.

The basic factors that keep a person healthy are :-

- | | | |
|-----------------------|---------------|-----------------|
| (a) Sleep | (b) Bathing | (c) Cleanliness |
| (d) Eating & Drinking | (e) Exercises | |

What are the sources of water ? How is water purified ?

The sources of water are :-

- | | | |
|----------------|-------------------|-----------------------|
| (a) Rain water | (b) Surface water | (c) Underground water |
|----------------|-------------------|-----------------------|

Methods of Purification :-

- | | | |
|-------------------|---|------------------------------|
| (a) Clarification | - | Removal of suspended matters |
| (b) Sterilisation | - | By chlorine |

Methods of Clarification :-

- | | | |
|-------------------|---|-----------------------------------|
| (a) Sedimentation | - | By use of chemicals |
| (b) Filtration | - | Using filters |
| (c) Sterilisation | - | By boiling water/bleaching powder |

What are the two important aspects of health of an individual ?

The two important aspects of health of an individual are Hygiene and Sanitation.

What are the arrangement required to maintain sanitation in the camp ?

The arrangement required to maintain sanitation in the camp are :-

- Sufficient water should be made available
- Food cleanliness and security till distribution
- Garbage should be thrown far away
- Area around camp should be clean
- Latrine should be kept far away from the camp.

Answer the following questions

- To prevent Malaria, List out five personal protective measures.
- Purification of water on large scale (one line each – any three methods)
- Purification of water on small scale at home is done by :- ?
- Name the basic factors which contribute to good health.
- Write the important aspect on personal hygiene that you would like to follow.
- What is full form of AIDS ? What action will you take to prevent AIDS ?
- Name the preventive measures that can be taken to stop spreading of communicable diseases.
- How is Obesity checked ?
- Mention the six constituents of food.
- What is safe water ?
- What are the types in which communicable diseases can be classified ?
- AIDS is spread by the following :- ?
- Dental decay is caused by the deficiency of vitamins _____ & _____
- Leprosy is caused by a germ called _____
- The carrier Malaria dengue and filarias are _____
- The largest component of diet is _____

What is First aid ? What are the equipment or items present in first aid kit ?

First aid is the immediate help given to an injured person until expert medical attention is received. The FA box contains :-

- | | |
|-------------------------------|--------------------------------|
| (a) Sterile gauze dressing | (b) 2” roll of bandage |
| (c) 1” one roll adhesive tape | (d) A roll of absorbent cotton |
| (e) Ice bag | (f) Mild antiseptic |
| (g) Sun burn lotion | (h) Clove oil |
| (j) Pair of scissors | (k) One pack needles |
| (l) Oral Thermometer | (m) Iodine bottle or Tincture |
| (n) Triangular bandage | (o) Snake bite kit |

Explain the general rules for the treatment of burns & Scalds ?

The general rules for the treatment of burns & scalds are :-

- (a) Avoid handling affected area more than necessary
- (b) Do not apply lotions of any kind
- (c) Do not remove burned clothing and do not break blisters
- (d) Cover the area with a sterile dressing if possible otherwise cover it with cloth
- (e) Bandage firmly if no blisters

Answer the following questions

1. Describe how to treat a case of snake bite.
2. The two main types of bleedings are _____ and _____.
3. In case of a fracture, the correct action is “_____ them where they lie and as they lie”.
4. What is first aid ? What are the immediate aims of first aid ?
5. What are the first aid treatments given to any one with Burn injuries.
6. Write the items held in the first aid box.
7. Write the function of the following :- a) Lungs b) Skin c) Skeleton.
8. Define First Aid .
9. Define Fracture ? What are the signs and symptoms of simple fracture ?
10. Write down the signs and symptoms of Asphyxia ?
11. Write down the types of Artificial respiration.
12. How does a trained first aider proceed to treat a patient ?
13. What points will you keep in mind while giving mouth to mouth respiration ?
14. ENA What are the causes of Ecological Imbalance ?

ADVENTURE ACTIVITIES

Aim: To develop confidence, courage and determination

Scope: To enable cadets to overcome fear, develop self confidence

What are the aims of adventure training ?

The aims of adventure training are :-

- (a) To develop special qualities of courage among the cadets
- (b) Develop leadership qualities
- (c) Develop and enhance the spirit of adventure, sportsmanship, and confidence in cadets
- (d) Develop spirit of camaraderie, team work and self confidence among their cadets
- (e) Make a cadet confident and disciplined physically and mentally
- (f) Develop the ability to take risks for a given purpose

What are the adventure activities done by NCC cadets ?

The adventure activities done by NCC cadets are :-

- | | |
|-------------------------------|--|
| (a) Trekking | (b) Rock climbing |
| (c) Mountaineering expedition | (d) Para jumping |
| (e) Water skiing, sailing | (f) Basic & advance mountaineering courses |
| (g) Kayaking, yachting | (h) White water rafting |
| (j) Hang gliding | (k) Glider and micro light flying |
| (i) Para sailing | |

Adventure activities have been incorporated in NCC with the aim of inculcating and strengthening _____ amongst the cadets.

Nehru institute of mountaineering is at _____

Darjeeling,

Name two water based adventure activities?

Scuba diving, Rafting

Name two air based adventure activities?

Para sailing, Para jumping

Answer the following questions

1. what are the aims of adventure training ?
2. What are the Adventure activities undertaken by NCC cadets ?
3. Write down how you will plan, organize and conduct cycle expedition in which about 100 Kms is to be covered in three days.
4. What are the actions to be taken while planning a trek of NCC cadets. Give your reply in chronological order in point form.
5. What are the aims of Trekking camps. ?
6. While selecting cadets for Trekking, what points will you bear in mind. ?
7. What are the various types of Adventure Activities conducted by NCC at DGNCC level, Group level and Unit level ?

ENVIRONMENT AND ECOLOGY

Aim: To sensitise and train cadets on conservation of environment and ecology

Scope: Basic understanding of environment and ecology, the need for their conservation, pollution and its control

What method you adopt as NCC cadet to improve ecology in your village ?

The methods to improve ecology in the village are :-

- | | |
|---|--------------------------------------|
| (a) Use organic manure instead of chemical fertilizers and pesticides | (g) Educate the people |
| (b) Recycling solid waste | (h) Purify water before use |
| (c) Aforestation | (j) Sanitary land fillings |
| (d) Restrict washing, bathing in rives/ near wells | (k) Waste control through management |
| (e) Promote gas cooking | (l) Water harvesting |
| (f) Pollution free vehicle | (m) Enforce laws on waste disposal |

What are the control measures of water pollution ?

The control measures of water pollution are :-

- (a) Reutilisation and recycling of waste
- (b) Effluents from factories must be treated before it is discharged into river
- (c) To remove pollution by physical and chemical methods.

What are the actions to be taken to preserve Environment ?

To preserve the Environment :-

- | | |
|--|--------------------------------------|
| (a) Ensure preservation of wild life | (c) Enforce strict laws on pollution |
| (b) Control population growth | (d) Prevent use of CFCs |
| (e) Make people aware of preservation of our environment | |

Answer the following questions

1. How do you protect Wild life ?
2. _____ is the National flower.
3. _____ is the National Bird.
4. _____ is the National Animal.
5. What are the main causes for environmental deterioration and ecological disabilities ?
6. Name any five actions to preserve environment.
7. Bandhabghar National park is located in _____ state.
8. Elephants are poached so as to steal _____.
9. A fragrant tree which is smuggled out of Karnataka is _____.
10. Sunderban Delta is in _____ state.
11. What are the hazards of destabilization of environment ?
12. Define Environment.
13. What are the causes of atmospheric pollution in cities and how can it be reduced ?

14. Name different types of Forest?
15. Lion is found in _____ forest of _____ state.
16. The Horn Rhino is found in _____ wild life sanctuary.
17. Late Dr.Salim Ali was associated with _____ throughout his life.
18. Species content of animals present in any area is **Fauna**
19. World Environment day is _____
20. NEHU (North Eastern Hill University) is at _____
21. The architects of Indus Valley Civilization were **Dravidians**.
22. **Sundarban** is the world's largest Delta.

SELF DEFENCE

Aim: To train cadets in defending themselves against miscreants

Scope: Basic information about precautions to be taken, prevention of untoward incidents and methods to deal with it

What is unarmed combat?

Training to protect oneself from unsocial elements.

Use of unarmed combat training?

A man develops self confidence, determination and can fight with enemy with full vigour.

Essentials for unarmed combat?

- The enemy is to be attacked when there is slackness
- Attack the enemy with smartness
- Attack should be of full vigor
- Do the work with cleanliness
- Seek in initiative at first at every stage
- After defence prepare for attack
- Attack on vulnerable parts of the body
- To deceive enemy
- Attack suddenly
- Power
- training

Describe full Nelson.

Insert your both hands in the arm pit of the enemy and finally put your hand behind the neck. The finger of both hands should be fastened and then press head of enemy down and control him.

Describe basic throws.

Right hip throw.....

Reverse hip throw.....

Arm throw.....

Vulnerable parts of the body.

In Front: Eyes, ears, temples, nose, mouth, chin, front and sides of throat. Solar plexus, abdomen, testicles, Knees etc

Behind: Base of skull, spine, kidneys etc.

The vital spots behind the body are _____, and _____. Base of Skull, spine, kidneys.

Name any two types of throw?

Right hip throw, Ankle and shoulder throw, over shoulder throw, Rug by tackle, Reserve hip throw, Arm throw.

Name any three forms of attack?

Chin Jab, Knee blow, the kick, Full Nelson, Wrist locks, Strangle holds.

POSTURE TRAINING

Aim: To provide posture training to the cadets

Scope: Basic knowledge on posture training, anatomy, body segments and correct use of body in motion

What are the main objectives of posture training ?

The main objects are :-

- (a) Develop the personality of the cadets.
- (b) Build their physique and teach them correct postures.
- (c) Make them more self-reliant.
- (d) Coordinate body movements.

Grace and Poise are the hall mark of one's personality.

The function of Bending, Straightening and extending are of **Ball and socket** Joint.

Bending and straightening are the functions of **condyloid** and **Hinge** Joints.

The functions of rotation is of **Pivot** joint.

Fore arm, head and neck are examples of **Pivot** type of joint.

Elbow, Knee, Ankle fingers are examples of **Hinge** type of Joint.

Hip, Shoulder and trunk are examples of Ball and socket Joints.

Head, Neck, Wrist, Fingers and Toes are of **Condyloid** Joints.

When muscles are continuously stretched by habitually **poor posture** they lengthen and their tone diminishes.

We constantly adjust to **eight** segments of the body.

When the eight segments of the body are held one upon another in the best possible manner the **posture** is good.

The incorrect body posture is more **fatiguing** as more energy is required to maintain the physical equilibrium.

Correct standing means that the weight of the body should be on **both feet**, knees should be relaxed line of abdomen should be almost straight, pelvis should held **squarely** over the base of the support, chest over **pelvis**, shoulders resting easily over the rib cage. Head over shoulder and chin should be **parallel** to the feet.

The exercises that help in gaining muscle control and in correct standing are :-

- (a) Walk, run, walk run.....repeat.
- (b) Skip.....repeat

The exercises that will help in improving use of legs and in correct walking are :-

- (a) Skip high, Skip low.....repeat.
- (b) Walk, run, walk run.....repeat.
- (c) Run in slow and long stride.

Hook Box setting hands clasped around knees will help in correction of **trunk** and **head alignment**, flexibility of spine and abdominal muscles.

Describe the correct standing exercise for strengthening of lower back ?

- (a) Back lying knee pulled to chest and held .
- (b) Roll forward and back and from side to side.
- (c) Repeat.

What are the various types of Joints of the human body?

The various types of Joints in the human body are :-

- (a) Ball and socket
- (b) Candyloid
- (c) Hinge
- (d) Pivot
- (e) Irregular

What are the causes of bad posture?

- The following are the causes of bad posture:
- Due to muscular and organic defects.
 - Lack of nourishment.
 - Fatigue due to overwork.
 - Due to illness and infections.
 - Due to bad habits.
 - Due to poor hygiene.

What are the various causes of incorrect walking?

- Fatigue
- Poor health
- Disturbed state of mind
- Lack of Knowledge of correct way of walking.

Describe the standing exercise for correct walking and standing?

- Stand with back against the wall.
- Stretch up tall.
- Contact abdominal muscles and place pelvis under the abdomen.
- Relax and Repeat.

Describe the walking exercise for correct standing and walking ?

- Walk on toes with hands stretched upwards w/o letting the body slump.
- Lower the heels and hands gradually.
- Ensure that trunk and head are held in fully extended position while walking.

Describe the correct walking ?

- Heels in contact with the ground first.
- Weight of the body transferred to the balls of the feet.
- Toes used in definite push of action at each step.
- Legs swinging forward and parallel.
- Feet swinging forward and parallel.
- Relaxed arm swing.
- Good body alignment.

Describe the exercise "Standing with hands on hips for developing balance and muscle strength.

- Raise heels
- Bend knees keeping trunk erect.
- Stretch and stand
- Lower heels and repeat.

General**What is the highest rank in Indian Army? Name two officers to secure it.**

The highest rank in Indian army is 'FIELD MARSHAL'.

The officers who have been decorated with the rank of FM are: -

- Gen. S.H.F.J. Manekshaw. L
- Gen. K.M. Cariappa.

Where is the Headquarters of Armed forces located? New Delhi.

Where is the NCC headquarters located? New Delhi.

What is meant by 'No Mans land'?

It is the common land between the LOC of two countries. It does not belong to anyone country.

When and where were the first atom bombs used?

The first atom bombs were used by America against Japan during the Second World War.

- Hiroshima - 6th August 1945.
- Nagasaki - 9th August 1945.

Who were the first chiefs of staffs of Independent India?

The first chiefs of staffs were: - 1) Army Chief : Gen. KM Cariappa. 2) Naval Chief : Vice - Admiral R.D. Katari.

- Air Chief Air Marshal S. Mukherjee.

When was the first atom bomb exploded by India?

Ans. India exploded the first atom bomb on May 18, 1974 at Pokhran in Rajasthan.

India tested the nuclear devices for the second time on May 11 and May 13 1998, again at Pokhran.

What is NBC warfare?

NBC warfare means the use of Nuclear, Biological and Chemical Weapons.

What is biological warfare?

Use of disease producing germs, bacteria and viruses by air burst in enemy country causing damage, disability and death to the enemy, animals and his crops is called biological warfare.

What is psychological warfare?

Psychological warfare means spreading rumor amongst the enemies so as to create panic, lower their morale and disrupt their discipline. team spirit and mutual cooperative endeavor.

When was NCC started in India?

NCC was started on 16- July - 1948.

How many directorates are there in NCC? Which is your Directorate?

There are 17 directorates in NCC, each headed by a Deputy Director General NCC (DDG NCC) of the rank of Brig / Equivalent.

Karnataka and Goa Dte

| | | |
|--------------|---|--|
| 1) A.A.C. | - | Army Aviation Corps. |
| 2) A.C. | - | Ashoka Chakra. |
| 3) A.D.A. | - | Aeronautic Development Agency. |
| 4) A.D.C. | - | Aide- De- Camp. |
| 5) A.D.G. | - | Additional Director General. |
| 6) A.E.C. | - | Army Educational Corps. |
| 7) A.H.Q. | - | Army Head Quarters. |
| 8) A.M.C. | - | Army Medical Corps. |
| 9) A.N.E.S. | - | Anti National Elements Suspects. |
| 10) A.O.C. | - | Army Ordnance Corps. |
| 11) A.P.S. | - | Army Postal Service. |
| 12) A.P.T.C. | - | Army Physical Training Corps. |
| 13) A.S.C. | - | Army Service Corps. |
| 14) ASEAN | - | Association of South East Asian Nations. |
| 15) A.V.S.M. | - | Athi Vishistha Seva Medal. |
| 16) Bn. | - | Battalion. |
| 17) B.A.S.H. | - | Bird Aircraft Strike Hazard. |
| 18) B.S.R.M. | - | Battlefield Short Range Missile. |
| 19) C-in-C. | - | Commander - in - Chief. |
| 20) C.D.S. | - | Combined Defence Service. |
| 21) C.M.G. | - | Carbine Machine Gun. |
| 22) C.M.P. | - | Corps of Military Police. |
| 23) C.N.S. | - | Chief of Naval Staff. |
| 24) C.O. | - | Commanding Officer. |
| 25) COADA | - | Corps Of Air Defence Artillery. (Also CADA). |
| 26) C.O.A.S. | - | Chief Of Army / Air Staff. |
| 27) C.O.E. | - | Corps Of Engineers. |
| 28) C.O.S. | - | Corps Of Signal. |
| 29) C.Q.B. | - | Close Quarter Battle. |
| 30) C.T.B.T. | - | Comprehensive Test Ban Treaty. |
| 31) D.D.G. | - | Deputy Director General. |
| 32) D.G. | - | Director General. |
| 33) D.R.D.O. | - | Defence Research and Development Organization. |
| 34) D.S.C. | - | Defence Security Corps. |
| 35) E-in-C. | - | Engineer - in - Chief. |

| | |
|----------------|---|
| 82) P.O.T.A. - | Prevention Of Terrorism Act. |
| 83) P.O.W. - | Prisoner Of War. |
| 84) P.S.L.V. - | Polar Synchronous Launch Vehicle. |
| 85) P.V.C. - | Param Veer Chakra. |
| 86) P.V.S.M. - | Param Vishistha Seva Medal. |
| 87) Q.R.T. - | Quick Reaction Team. |
| 88) R.A.W. - | Research and Analysis Wing. |
| 89) R.C.L. - | Recoilless Chamber Loading. |
| 90) R.D.X. - | Research Developed Explosives / Readily Detona Explosives. |
| 91) R.I.M.C. - | Rastreeya Indian Military College. |
| 92) R.M.V.C. - | Re Mount and Veterinary Corps. |
| 93) R.O.A. - | Regiment Of Artillery. (Also RA). |
| 94) R.P.G.L. - | Rocket Propelled Grenade Launcher. |
| 95) R.V.C. - | Rastreeya Veterinary College. |
| 96) SAARC - | South Asian Association for Regional Co-operatio |
| 97) S.A.L.T. - | Strategic Arms Limitation Talks. |
| 98) SEATO - | South East Asia Treaty Organization. |
| 99) S.M. - | Subedar Major / Sena Medal. |
| 100) S.M.C. - | Sten Machine Carbine. |
| 101) SMLE - | Small Magazine Lee Enfield. |
| 102) SRBM - | Short Range Ballistic Missile. |
| 103) S.S.B. - | Service Selection Board. |
| 104) T.A. - | Territorial Army. |
| 105) U.N.O. - | United Nations Organization. |
| 106) UOTC - | University Officer Training Corps. |
| 107) UYSM - | Uttam Yudh Seva Medal. |
| 108) V.C. - | Veer Chakra. |
| 109) VCOAS - | Vice Chief Of Army Staff. |
| 110) V.S.M. - | Vishistha Seva Medal. |
| 111) W.M.D. - | Weapons of Mass Destruction. |

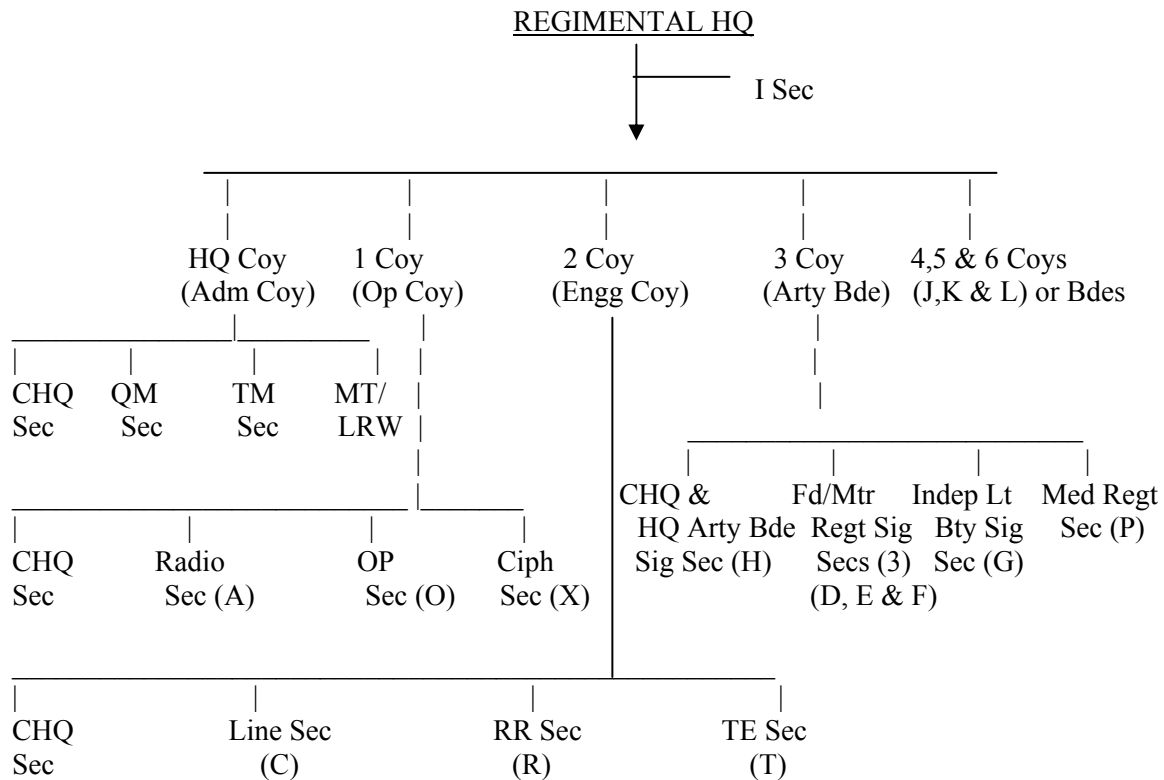
| | |
|-----------------|--|
| 36) E.M.E. - | Electrical and Mechanical Engineers. |
| 37) E.S.M. - | Ex – Service Man. |
| 38) F.M. - | Field Marshal. |
| 39) Gen. - | General. |
| 40) GOC-in-C- - | General Officer Commanding – in – Chief. |
| 41) G.P.S. - | Global Positioning System. |
| 42) G.S.L.V. - | Geo Synchronous Launch Vehicle. |
| 43) G.T.R.E. - | Gas Turbine Research Establishment. |
| 44) H.A.L. - | Hindustan Aeronautics Limited. |
| 45) I.A.F. - | Indian Air Force. |
| 46) I.B. - | International Border. |
| 47) I.C. - | Intelligence Corps. |
| 48) I.C.B.M. - | Inter Continental Ballistic Missile. |
| 49) I.C.O. - | Indian Commissioned Officer. |
| 50) I.M.A. - | Indian Military Academy. |
| 51) I.N.A. - | Indian National Army. |
| 52) I.N.S. - | Indian Naval Ship. |
| 53) INSAS - | Indian New Small Arms System. |
| 54) I.P.K.F. - | Indian Peace Keeping Force. |
| 55) I.R.B.M. - | Intermediate Range Ballistic Missile. |
| 56) I.S. - | Internal Security. |
| 57) I.S.I. - | Inter Service Intelligence (of pakistan). |
| 58) I.S.R.O. - | Indian Space Research Organization. |
| 59) J.C.O. - | Junior Commissioned Officer. |
| 60) K.C. - | Kirti Chakra. |
| 61) K.S.B. - | Kendriya Sainik Board. |
| 62) L.A.C. - | Line of Actual Control. |
| 63) L.C.A. - | Light Combat Aircraft. |
| 64) L.O.C. - | Line Of Control. |
| 65) L.R.P. - | Long Range Patrol. |
| 66) M.B.T. - | Main Battle Tank. |
| 67) M.E.S. - | Military Engineering Service. |
| 68) M.I. - | Mechanized Infantry. |
| 69) M.N.S. - | Military Nursing Service. |
| 70) M.P. - | Military Police. |
| 71) M.R.B.M. - | Medium Range Ballistic Missile. |
| 72) M.V.C. - | Maha Veer Chakra. |
| 73) N.A.L. - | National Aeronautics Limited. |
| 74) N.A.M. - | Non-Alignment Movement. |
| 75) N.A.S.A. - | National Aeronautics and Space Administration. |
| 76) N.C.C. - | National Cadet Corps. |
| 77) N.C.O. - | Non Commissioned Officer. |
| 78) N.D.A. - | National Defence Academy. |
| 79) O.T.S. - | Officer Training School. |
| 80) P.C. - | Pioneer Corps. |
| 81) P.M.F. - | Para Military Force. |

Special Syllabus (Signals)

| S No | Subject | Description | Total Periods |
|--------------|---|--|---------------|
| 1 | Organisation and Division Of signal Regt & Bde Coy(o) | Organization of divisional signal regiment Organisation of brigade signal company Organisation of divisional signal regiment and brigade signal company | 2 |
| 2 | Radio Equipment/ Procedure | Description facilities and control of radio sets Block diagram of radio set, link sign calling and answering Explain procedure Connecting up of radio set and practical work | 5 |
| 3 | Line Equipment | Line equipment characteristics of a magneto telephone, its function , facilities, mechanical construction and control Simple testing of magneto telephone Exchange magneto 10 line UC and 15 line Facilities provided in Exchange magneto 10 line UC and 15 line Operating procedure of exchange Demonstration for connection of single and multiple calls Practical operation of an exchange UC10 line/ and 15 line | 7 |
| 4 | RT Procedure | Need for procedure and phonetic alphabets How to speak on RT RT phrases and rules of spelling/figures Explain a Radio set, link sign calling and answering Tuning and netting procedure Passing a UR message Procedure of connections How to pass a formal message and repetitions Explain how to pass long message | 8 |
| 5 | Signal Centre Procedure | Signal centre Need for signal center and handling of message Organization of signal center for handling of messages | 2 |
| 6 | Flag drill | Flag drill means of communication used in olden days as well in olden days Concept of sending message by flags and its advantages/disadvantages over other means of communication Indication of various alphabets with the help of flags and practice of sending messages with the help of flags | 2 |
| 7 | Troposcatter and satellite communication | Types of communication and different bands of frequency used in communication Characteristic of troposcatter and satellite communication Major components of troposcatter and satellite Advantage/disadvantage of troposcatter and satellite communication as compared to other satellite communication | 4 |
| 8 | Charging Sets | Description, Facilities and controls of charging engine 300watts Connecting up and battery charging to practice | 3 |
| 9 | Construction and Maintainance of Lines | Characteristics of field calls(WD-1) Organisation and duties of line dets To explore simple line fault and other rectification Line laying, demonstration by staff and practice by students | 3 |
| Total | | Total (30% of total 120 periods) | 36 |

ORGANISATION OF DIVISIONAL SIGNAL REGIMENT

Draw a neat diagram/out line of Inf Div Sig Regt. -



In an organisation of Bde Sig Coy define the roll and responsibilities of the following detachments/Sections :-

- (i) Coy Stores and Maint det :- This detachment deals with all stores, arms, ammunition vehicles, clothing, rations, petrol, oil i.e their demand, storage and issue. It also carries out light repairs of all Signal Equipment (One radio mechanic is also provided in each Battalion det). The section also carries out maintenance and charging of secondary batteries.
- (ii) Rover Det :- This det provides a mobile VHF radio communications for the Commander on B1 link when the commander moves out from his HQ.
- (iii) Cipher Section :- Secret Signal messages are encoded before transmission and then decoded by specially cipher operators.

What are the radio links provide by a Brigade Sig Coy ? Define of them .

Four types of radio links are provided by a Brigade Sig Coy. They are :-

B-1 :- This is the command radio telephony net of the brigade and normally functions from BM's vehicle. Its out stations are infantry battalions and unit of supporting arms if any, such as a squadron of armour or an artillery regiment.

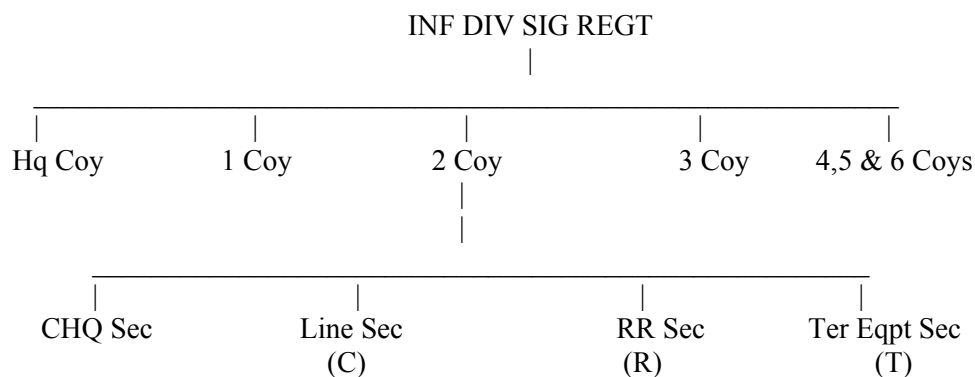
The Commander's rover when away from the headquarters comes up on this net.

B-21 :- This is the administrative net of the brigade working on radio telephony Or morse telegraphy. It normally functions from DAA & QMG's vehicle. It has The Bde 'B' tach as its out station.

D-1 :- The terminal is provided from the BM's vehicle to work on divisional radio telephone (G) net. This link is the most important command and control link of the division.

D-2 :- The terminal is provided from a radio vehicle and is the main traffic clearing link. It is a Radio Teleprinter Telegraphy (RTT) link.

Draw a neat diagram/outline of 2 Coy of an Inf Div Sig Regt and its role ?



2 Company :- This company is responsible to provide line sections ('C' Section) which lays and maintains all field telephone lines from Divisional Exchange to the sub units and Divisional subscribers. The Radio Relay section provides the VHF point to point line of sight communication from Divisional HQ to Brigades, Battalions and other sub units. The Terminal Equipment section (TE Sec) is responsible to provide multiplexing equipment to derive number of channels on a single pair of line or a radio duplex link.

Fill in the blanks :-

- (i) **B-21** is administrative link of a Brigade.
- (ii) Rover det provides mobile radio communication for Commander on **B-1** link.
- (iii) Security Section is directly comes under **RHQ Sec** in Div Sig Regt
- (iv) **TE** is responsible to provide multiplexing equipment to derive number of channels on a single pair of line or a radio duplex link.
- (v) **QM Sec** is the part of HQ Coy in Div Sig Regt.
- (vi) Inf Div Sig Regt consists of **Seven** Coys
- (vii) Cipher Section is also known as **X** Section
- (viii) Telecom maintenance section is a part of **HQ** Coy
- (ix) 3 Coy is other wise known as **Arty Bde Sig Coy**
- (x) I Section is under direct control of **RHQ**

State True or False :-

- | | | | |
|-----|--|---|-----|
| (a) | Infantry Divisional Signal Regiment consists of four Coys | - | T/F |
| (b) | 1 Coy is also known as Telecommunication Engineering Coy | - | T/F |
| (c) | Inf Bde Sig Coys are affiliated to the respective Inf Bdes | - | T/F |
| (d) | Cipher Section is also known as X Section | - | T/F |
| (e) | RR Section look after Radio Relay | - | T/F |

RADIO EQUIPMENT/PROCEDURE

What are the major accessories of RS HB LHP-219 used for manpack ?

- (i) Tuner Radio Frequency Mk3 (ii) Battery Case Assembly (iii) Nickel Cadmium Secondary Battery (iv) Dual Charger (v) Whip antenna (vi) Support Antenna (vii) Coaxial Cable assembly 0.25 m (viii) Carrying Harness (ix) Head gear assembly

What are the types of aerials used in RS HB LHP-219 ?

The various types of aerials are used in RS HB LHP-219 are :-

- (i) Whip Antenna System (ii) Dipole Antenna System (iii) Inverted L/Slant wire antenna System

Fill in the blanks :-

- (i) SSB stands for **Single Side Band**.
- (ii) There are **Five** positions in Function Switch.
- (iii) Type of operation if RS HB LHP-219 is **Simplex**.
- (iv) **Whip** antenna is used in man pack.
- (v) The power in put of RS HB LHP-219 is **24 V DC**

Write down the purpose and facilities of RS HB LHP-219 ?

Purpose :- Transmitter Receiver RS HB LHP-219 is fully transistorized transceiver Providing voice and telegraph communication over the freq range of 2 to 29.999 Mhz in 28,000 channels at 1 Khz intervals having incorporated with the latest techniques of circuit design, using hybrid micro circuits & integrated circuits.

Facilities :-

- It provides voice and telegraph comn
- Its range of comn is 25 kms to 250 kms by using whip and wire aerials
- It provides 28000 channels with the spacing of 1 Khz
- It can provide mobile comn
- It is light weight so can use both ground and man pack

Answer the following :-

- | | | |
|-------|---|-----------------|
| (i) | What is the frequency range of RS HB LHP-219 ? | 2 to 29.999 Mhz |
| (ii) | What is the range of communication both in whip and wire aerial ? | 25 to 250 Kms |
| (iii) | Write the power output in various frequencies ? | |
| | 2 – 15 Mhz : 15 W (PEP) | |
| | 15 – 29.999 Mhz : 7.5 W (PEP) | |
| (iv) | What is the length of coaxial cable used in manpack ? | 0.25 m |
| (v) | What is length of Whip antenna ? | 3.1 m |

State True/False :-

- | | | |
|--------|--|--------|
| (i) | RS HB Set can be used as man pack | -T/F |
| (ii) | The range of communication in wire aerial is 450 Kms | - T/F. |
| (iii) | RS HB LHP-219 provides voice and telegraph comn | - T/F |
| (iv) | The permissible power supply voltage variation of RS HB LHP-219 is 21.6 to 28 V. | - T/F |
| (v) | Key telegraph is used for voice comn | - T/F |
| (vi) | The frequency range of RS HB LHP-219 is 2 to 30 Mhz | - T/F |
| (vii) | The comn range of RS HB LHP-219 in dipole aerial is 250 Kms | - T/F |
| (viii) | Power output of RS HB LHP-219 in 2 to 15 Mhz is 7.5 Watts | - T/F |
| (ix) | 28,000 channels are provided in RS HB LHP-219. | - T/F |
| (x) | RS HB LHP-219 can be used as man pack. | - T/F |

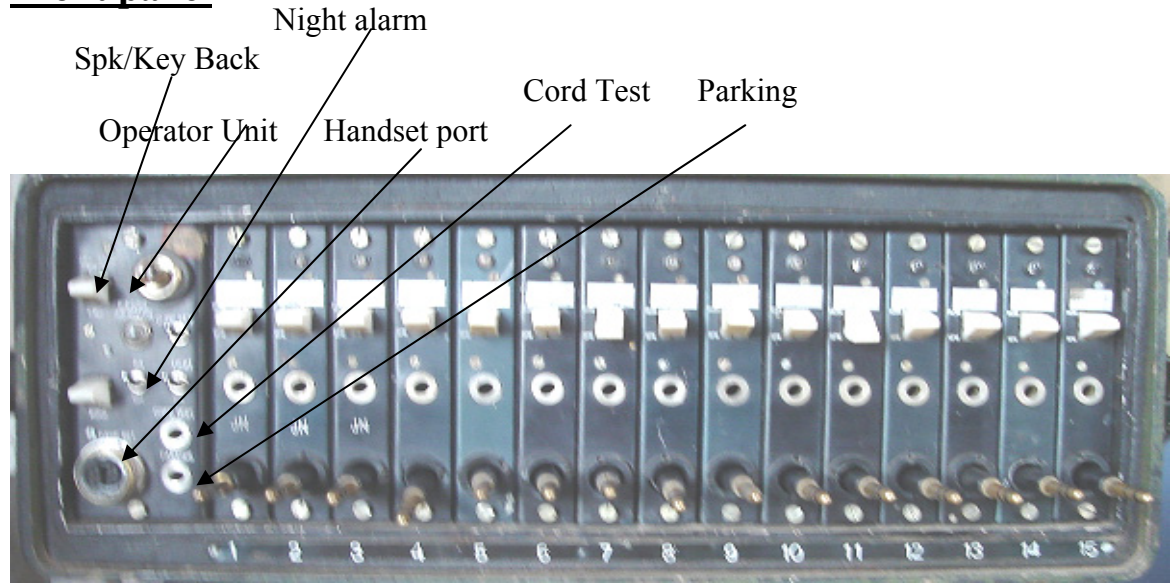
Fill in the blanks

- | | |
|-------|---|
| (i) | The comn range of RS HB LHP-219 in dipole aerial is 250 Kms |
| (ii) | Power output of RS HB LHP-219 in 2 to 15 Mhz is 7.5 Watts |
| (iii) | 28,000 channels are provided in RS HB LHP-219. |
| (iv) | Length of co-axial cable of RS HB LHP-219 in man pack is 0.5 mtr |
| (v) | The power in put of RS HB LHP-219 is 24 V DC |

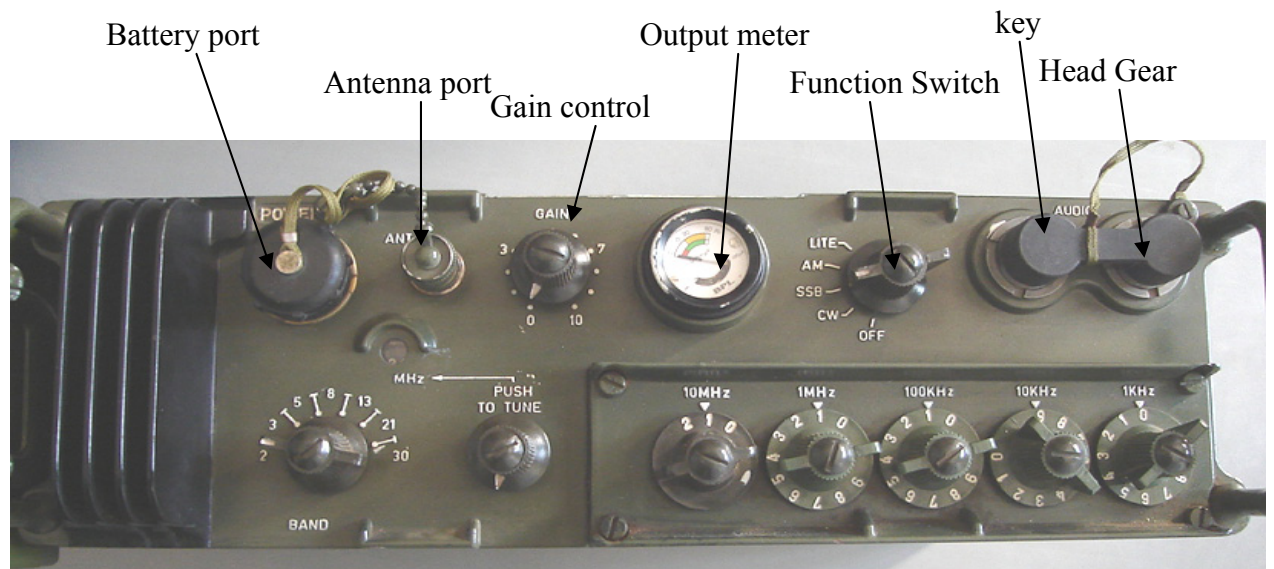
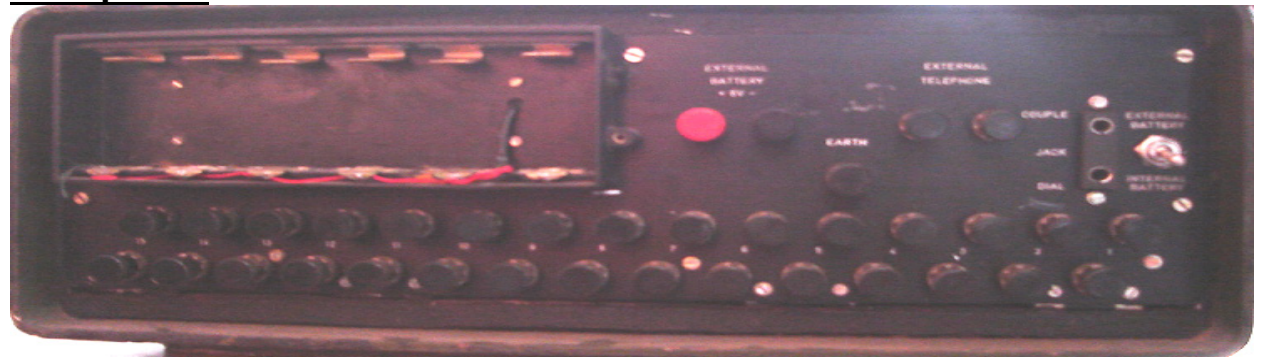
LINE EQUIPMENT

Switch Board Manual 15 line Exchange.

Front panel



Back panel



HB LHP – 219 Transmitter-Receiver



Head Gear



Dipole Antenna



Morse Key



Rod Antenna



Matching Unit



Hand set



Signals

- (a) The types of communication are _____ and _____.
- (b) The range of communication of 10 line exchange is _____.
- (c) The types of telephone sets are _____, _____, _____ and _____ :-
- (d) _____ power supply is required for telephone set.
- (e) Switchboard telephone 15 line exchange can work with _____, _____, _____ exchange.
- (f) Speak/Monitoring key has _____ positions.
- (g) Battery switch has _____ positions.
- (h) There are _____ types of RT communication.
- (i) The Principal on which procedures for sending message can be best remembered by the word _____.
- (j) There are _____ types of messages.
- (k) All messages must consist of _____ parts.
- (l) There are _____ types of precedence of message.
- (m) There are _____ types of security classification of messages.
- (n) The types of telephone sets issued to the NCC are _____, _____ and _____ type.
- (o) The Telephone sets works on _____ signaling and on _____ power.
- (p) Name the various types of test carried out on Telephone sets?
 (i) _____ (ii) _____
 (iii) _____ (iv) _____
- (q) Name the controls provided in the back panel of the 15 lines exchange?
 (i) _____ (ii) _____ (iii) _____
 (iv) _____ (v) _____ (vi) _____
- (r) _____ terminal is used for joining out side lines and _____ used to park auto calls.
- (s) Name the types of RT Communications?
 (i) _____ (ii) _____ (iii) _____
- (t) What are the principals of standard procedures of lay out of messages ?
 (i) _____ (ii) _____ (iii) _____
- (u) The parts of a message are _____, _____ and _____
- (v) The types of security classification are :-
 (i) _____ (ii) _____ (iii) _____
 (iv) _____ (v) _____
- (w) The degrees of precedence used for transmission of messages are :-
 (i) _____ (ii) _____ (iii) _____ (iv) _____ (v) _____ (vi) _____

Write short notes on Single call and Multiple call ?

- (i) **Single Call.** A call from one subscriber to another subscriber is known as single call.
- (ii) **Multiple Call.** A call from one subscriber to several subscribers are known as multiple call.

What are the facilities of telephone set field 5A/5B ?

The facilities of telephone set 5A/5B are :-

- (i) Facility exists for installing a auto dial and hooking with an auto exchange
- (ii) Facility for line test exists
- (iii) A device has been installed in the micro phone for noise cancellation.
- (iv) IN 'H' position the range of the telephone is increased considerably.
- (v) Facility exists on both 5A/5B for remote operating.
- (vi) Made of superior magneto and can function with CB/CBS exchange

Write down the name of parts of telephone set 5A/5B and their functions ?

The name of the parts of telephone set 5A/5B and their functions are as under :-

- (i) **Hand Set.** It is linked with the main body.
- (ii) **Cradle.** Has been designed to function with the CB/CBS Exchange. On lifting of the hand set from the cradle a ring is heard at the CBS exchange.
- (iii) **Line Terminals.** There are two in number and are used to join the out side lines with that of exchange.

iv) HLR Switch. This is a system which has three positions of High, Low and Remote.

(v) Battery Compartment. It is used to store and link 2 x 1.5 V cells.

(vi) TLR Screw. A total of 6 screws utilised when in use for auto dial or magneto exchange. This facility is not available in telephone set 5B.

What are the tests carried out in telephone set 5A/5B ?

The following tests are carried out :-

- (i) **Bell Test :** Short the line terminal L1 and L2 and turn the generator handle, the bell will give a sound.
- (ii) **Hand Set Test.** Connect the battery, Press the pressal switch and blow into the microphone, blowing sound be heard in the earphone.
- (iii) **Generator Test.** Lay two fingers on L1 and L2, turn generator handle, shock should be felt.
- (iv) **Outgoing Test.** Connect another telephone with the telephone. Ring up from one end and talk to the other. Speech from one another should be heard.

What are the chief principles of exchange operating ?

The chief principles of exchange operating are :-

- (i) Attend the call properly
- (ii) Answer politely
- (iii) Co-operate with distant operator
- (iv) Give the priority of VIP calls
- (v) Always adopt Accuracy, Speed and Courtesy.

State True/False

- (i) A lamp indicator has been provided to warn the operator about an incoming call. - T/F
- (ii) Weight of SWBD Manual 15 lines Exchange is 22 Kgs - T/F
- (iii) Consumption of electricity for ringer of SWBD 15 lines is 230 mA - T/F
- (iv) In 'H' position in telephone set the range of the telephone is decreased considerably - T/F
- (v) TRL switch does not exist in telephone set 5B - T/F

Write any of three functional checks are to be carried out after setting up the SWBD Manual 15 lines ?

After setting up the SWBD, the following functional checks are to be carried out :-

- (i) Check the operator's lighting unit by switching ON the toggle switch marked LIGHT.
- (ii) Check that the COUP SW is in appropriate position (i.e put on when internal telephone is used).
- (iii) Check the operator's telephone circuit by putting any one Spk/Mon key to SPK position and by blowing into the microphone and listening to the side tone.
- (iv) Check all the Spk/Mon keys, in turn by putting them to SPK position, blowing into the microphone and listening to the side tone.
- (v) Test all the cords/line circuits, in turn by plugging into 'cord test' jack in the operator's unit and pressing down the Ring key. Indicator diode lights up if the cords/line circuits are alright in the relevant line-cum-cord unit.

What are the types of maintenance to be carried out with telephone set field 5A/5B . write any one of them?

The maintenance of the tele set 5A/5B has to be carried out daily and on weekly basis.

(i) Daily Maintenance

- (aa) clean and protect from dust and dirt.
- (ab) Check hand set and generator for breakages
- (ac) Check batteries for leakage
- (ad) Check switches and cord.

(ii) Weekly Maintenance

- (aa) Check battery voltage. If below 2.5 V, change the battery
- (ab) Carry out the function test.

Write down the controls and terminals provided in the Rear Panel of SWBD Manual 15 lines ?

The controls and terminals provided in the rear panel of SWBD Manual 15 lines are :-

- (i) Subscribe Line Terminal** :- Utilised for joining out side lines. A total 30 pairs of lines can be joined.
- (ii) External Ringer out put Terminal** :- To put on the terminal when external ringer is required to be used.
- (iii) Earth Terminal** :- Used to earth the SWBD.
- (iv) Battery Switch** :- Has two position External and Internal. Internal battery is used as power supply when the position of the switch is on INT and in case external battery is used the position is on EXT.
- (v) Twin Jack Assembly**. Two jacks are found here. One jack called couple jack is used when two exchanges are coupled. The other jack called dial jack is used for fitting the dial unit while connected to an auto line/exchange.

Write down the dimensions of tele set 5A/5B ?

| <u>Type</u> | <u>Length</u> (cm) | <u>Width</u> (cm) | <u>Height</u> (cm) | <u>Weight</u> (kg) |
|-------------|-----------------------|----------------------|-----------------------|-----------------------|
| 5A | 22.5 | 8.0 | 11.6 | 2.35 |
| 5B | 23.0 | 9.5 | 11.5 | 2.50 |

Fill in the blanks :-

- (i) In **Bell Test** short the line terminal L1 and L2, turn the generator handle, the bell will give a sound.
- (ii) The weight of SWBD Manual 15 lines is **22 Kgs**.
- (iii) **15** plugs and cords are provided in SWBD Manual 15 Lines
- (iv) Telephone provides **Speech** communication
- (v) In put voltage of tele set 5A/5B is **3 V DC**.

Write down the main parts of SWBD Manual 15 Lines ?

Front Panel :- Spk/Ring back forward key, Ring ext/Ring int, Circular Hand Set Connector 4 Ways, LED (Light Emitting Diode), Jack, Parking Jack.

Back Panel :- Subscriber Line Terminal, External ringer Output terminal, Earth Terminal, Battery Switch, Twin Jack Assembly

Write down the facilities provided in SWBD Manual 15 Lines

- | | |
|---------------------------|----------------------------------|
| (i) Ringing facility | (vi) Monitoring facility |
| (ii) Night Alarm facility | (vii) Auto dialing facility |
| (iii) Cord test facility | (viii) Pane lamp facility |
| (iv) Coupling facility | (ix) External telephone facility |
| (v) Parking facility | |

What are the difference between the tele set 5A and 5B?**Tele Set 5A**

- (i) Small in size
- (ii) Auto dial can be attached
- (iii) Bell is tubular type
- (iv) TRL Switch exists
- (v) Thread type of line terminal

Tele Set 5B

- Large in size
- Cannot be attached
- Bell is gong type
- TRL switch does not exists
- Push type of line terminal

Write short notes :-

- (i) **Spk/Ring back forward key** :- It is used to ring the caller/subscriber. To ring the caller the position of the SPK Key is 'back' and to ring the subscriber the position is 'forward'.
- (ii) **Coupling Switch** :- It is utilised when two exchanges are linked up.
- (iii) **HLR Switch** : This is a system of tele set which has three positions of **High**, **Low** and **Remote**.

Fill in the blanks

- (i) The total length of JWD-1 in a full drum is **1.6** Kms
- (ii) There are **Three** universal junction is provided with in SWBD Manual 15 Lines.
- (iii) Coupling plug is used when more than **15** subscribers required.
- (iv) No of cells used for internal power supply in SWBD Manual 15 Lines is **Battery 1.5V No.6 x 6 cells**.
- (v) **Tubular** type of bell is provided in tele set 5A.

State True/False

- (i) The SWBD Manual 15 lines can work with Magneto/CB/CBS/Auto Exchange - T/F
- (ii) Weight of SWBD Manual 15 lines Exchange is 20 Kgs - T/F
- (iii) The weight of tele set 5B is more than 5A - T/F
- (iv) In a broken line generator handle of tele set will move hardly - T/F
- (v) Threaded type of terminals provided in tele set 5A - T/F

Write short notes on :-

(i) Multiple Call. A call from one subscriber to several subscribers are known as multiple call.

(ii) HLR Switch : This is a system of tele set which has three positions of High, Low and Remote

(iii) Spk/Ring back forward key :- It is the key provided in SWBD Manual 15 Lines. It is used to ring the caller/subscriber. To ring the caller the position of the SPK Key is 'back' and to ring the subscriber the position is 'forward'.

(iv) TLR Screw. It is a facility provided in Tele Set 5A. A total of 6 screws utilised when in use for auto dial or magneto exchange.

(v) Twin Jack Assembly. Two jacks are provided in the SWBD Exch 15 lines . One jack called couple jack is used when two exchanges are coupled. The other jack called dial jack is used for fitting the dial unit while connected to an auto line/exchange.

Fill in the blanks

- (i) Function of Night Alarm is _____ during night.
- (ii) Telephone set works on _____ signals.
- (iii) A combination of two or more cells is called _____.
- (iv) _____ is used for testing of cords/plugs.
- (v) Coupling plug is used where there are more than **15** Subscribers.
- (vi) Telephone provides _____ communication.
- (vii) In a telephone, the output of generator is _____ to _____ volts AC.
- (viii) The total length of JWD cable in a full drum is **1.6** Kms.
- (ix) There are **Three** universal junction is provided with in SWBD Manual 15 Lines.
- (x) Threaded type of terminals provided in tele set **5A**

RT PROCEDURE**Talking on radio is different from talking on line. Define the reasons**

Talking on radio is different from talking on line because :-

- (i) Radio is easier to intercept
- (ii) Radio transmissions are liable to atmospheric disturbances and interference from other stations
- (iii) Radio sets are not normally provided with facilities for simultaneous, two way communication.
- (iv) Radio sets are liable to be jammed.

What is RSVP ? Expand and brief R and S ?

R – Rhythm S – Speed V – Volume P – Pitch

(i) Rhythm. Any phrase spoken in ordinary conversation has natural rhythm which helps to make it

intelligible. This rhythm must be preserved when the phrase is spoken on RT and the following rules must be followed :-

(aa)The message must be spoken in short, complete phrases that make sense and not word by word.

(ab)Care must be taken not to say ER after a word or to insert it between phrases.

(ii)Speed.(aa) The user must speak steadily at medium speed. If a user speaks too fast, speech will be received as an unintelligible jumble of words. If he speaks slowly, he will waste time and exasperate the receiver.

(ab)The speed of speech must be constant through out

(ac)The less important words must not be hurried over.

(ad)If the message has to be written down by the receiver pauses between the transmissions of phrases must be longer.

Write the appointment codes of the following ?

| | | |
|-----------------------------|---|-----------------|
| (i) Commander at all levels | - | Tiger |
| (ii) 'I' Staff Officer | - | Pigeon |
| (iii) 'Q' Staff Officer | - | Panther |
| (iv) Artillery Adviser | - | Bull |
| (v) Ordinance Adviser | - | Elephant |
| (vi) Signal Adviser | - | Sparrow |
| (vii) EME Adviser | - | Eagle |

What is Code word ?

A code word is a single word used to provide security cover for reference to a classified matter. The allocation of code words is controlled by the Army HQ who issue a group of code words to HQ Commands for further sub allotment as required.

Write down short notes on a formal message and parts which consist of ?

A formal message is one that written down and signed by the originator. Normally it will be written on a message form (IAFU-4009). A file copy and record of a formal message are kept in the local and distant signal centres or if there is no signal centre, at the radio terminals. Such message are cleared, normally on circuits other than RT.

The message consist of three parts :- (i) The Call (ii) The Text (iii) The Ending

What is the purpose of Appointment code ? Write any of the two appointment codes

- (i) To avoid disclosing of the nature of HQ by referring to specific appointments such as OC, Adj, QM and so on.
- (ii) To facilitate recognition of the RT users during bad speech condition as the codes are easily pronounceable and recognizable over RT.

What is Code word ?

A code word is a single word used to provide security cover for reference to a classified matter. The allocation of code words is controlled by the Army HQ who issue a group of code words to HQ Commands for further sub allotment as required.

What is BASS ?

BASS is the principles of RT. B - Bravity A – Accuracy S – Security S - Speed

SIGNAL CENTRE PROCEDURE

Write short notes on the following :-

- (i) **DTG** :- A group consisting of six figures which may be followed by a zone suffix letter. The first two digits express the date, 0 being used as the first digit. when the number is below 10, the remaining four digits express the time.
- (ii) **Precedence** :- Degree of urgency given to a message to indicate the order in which a message is to be handled from the time of its origin to the time of its delivery to the addressee.

- (iii) **Originator number** :- An alphabetical letter followed by four digits inserted at the beginning of the text. In the case of Army Headquarters six figures followed by the branch distinguishing letters are used.

State True/False

- (i) The person, firm or unit to whom a message is addressed is called Addressee - T/F
 (ii) The abbreviation for Precedence 'Flash' is Z - T/F
 (iii) All messages consists of four parts - T/F
 (iv) The time for clearing Routine message is 6 hours - T/F
 (v) There are two types of Signal Centres - T/F

What is the object of Signal Centre ?

The object of Signal Centre is to facilitate handling of messages in an orderly and expeditious manner.

What are the requirement of a Standard Procedure ?

The requirement of a standard procedure is to achieve :-

- (i) Accurate and expeditious clearance of traffic
 (ii) Uniformity in the functioning of all Signal Centers.
 (iii) Similarity in the maintenance of records and statistics at all Signal Centers.

What is message ?

Any thought or idea expressed briefly in a plain of secret language prepared in a form suitable for transmission by any means of communications.

What is Security Classification of a message ?

The Security Classification denotes the degree of secrecy mandatory in the handling of a message.

Write down the various precedences with their abbreviation and time limit for clearance ?

The various precedences and their abbreviation and time limit for clearances are as under :-

| <u>Name of Precedence</u> | <u>Abbreviation</u> | <u>Time limit for clearance</u> |
|---------------------------|---------------------|---------------------------------|
| (a) Flash | Z | 15 Mins |
| (b) Emergency | Y | 30 Mins |
| (c) Op Immediate | O | 2 Hours |
| (d) Priority | P | 4 Hours |
| (e) Routine | R | 8 Hours |
| (f) Defered | M | 24 Hours |

What is Signal Centre and type of Signal Centre ?

Signal Centre is an office where all the Signal Messages from Army subscribers are received and transmitted to the addressee by means of Army Radio or Telegraph circuits.

There are two type of Signal Centres :-

- (i) Small Signal Centre (Upto 50,000 groups per day)
 (ii) Large Signal Centre (More than 50,000 group per day)

Fill in the blanks :-

- (i) The time limit for clearance of Emergency message is **30 Mins**
 (ii) The degree of urgency is called **Precedence**
 (iii) The phonetic equivalent of 'F' is **Foxtrot**
 (iv) The abbreviation of the security classification 'TOP SECRET' is **Top Sec**
 (v) In a large signal centre **more than 50,000** groups are handling in a day

Flag Drill

What is the meaning of Flag Drill?

Flag Drill is means of Communication used in Olden days as well in modern days. Indication of various Alphabets with the help of Flags, and use for training of Morse code.

What are the point kept in mind while during the Flag Drill?

- (i) The position of Flag should be 90 Degree
- (ii) The Flag should be fully open.
- (iii) The flag should be visual.

What are the type of Flag is used in Army for Communication ?

There are two type:-

- (i) Flag Signaling Army blue small.
- (ii) Flag signaling Army white stripped small.

TROPOSCATTER AND SATELLITE COMMUNICATION

Write short notes on :-

(i) Scattering. A beam of radiated energy scattered due to the presence of turbulence in troposphere is called scattering.

(ii) Horizon Angle. The angle at which antenna must be aimed to see the clear horizon is called horizon angle.

(iii) Scatter Value. The communication volume between the transmitting and receiving antenna beam is called scatter volume.

What are the characteristics of troposcatter ?

Characteristics of Troposcatter.

- (i) The received signal strength depends upon the blobs or number of Turbulence.
- (ii) Fading occurs due to variation of troposphere.
- (iii) Scattering is available throughout the troposphere.
- (iv) The received signal power decreases with the increase in frequency and distance.
- (v) If a very narrow beam is being used, it decreases the scatter volume.

What are the differences between active and passive satellite

| <u>Active satellite</u> | <u>Passive Satellite</u> |
|--|--------------------------------------|
| (a) Signal Processing is done. | No Signal Processing |
| (b) Power supply system required. | Power supply system is not required. |
| (c) Life is less than Passive Satellite. | Life is more. |
| (d) Height is less above the ground. | Height is more above the ground. |
| (e) Size and Cost is More. | Size and Cost is less. |

What are the advantages of Troposcatter communication ?

- (i) Long range communication over inaccessible terrain.
- (ii) More number of channels.
- (iii) Less maintenance required.
- (iv) Good reliability.
- (v) Terminals are mobile.
- (vi) Compatible with army field signal equipment.
- (vii) No requirement of repeaters

What are the types of antenna used in Troposcatter communication ?

The following types of antenna are used in Troposcatter communication :-

- (i) Parabolic antenna (ii) Lens type antenna (iii) Any other highly sensitive antenna

What are the types of scattering ?

- (i) Turbulence scattering (ii) Turbulence layer scatter (iii) Larger reflection scattering

What is Active Satellite and name types of Active Satellites ?

Active Satellites act as transponder. It receives the signal from earth station, amplifies it and retransmits towards the earth station. Active satellites are of two types. They are (i) Synchronous Satellite (Geo Stationary) (ii) Non Synchronous Satellite

Write the advantages of Satellite ?

- Satellite communication has a very large band width Appx 500Mhz hence a large number of channels can be provided.
- Any new earth station can be added easily.
- Very large range communication is possible.
- Large number of systems can be derived on the same route e.g. FAX, TELEX, DATA, SPEECH.
- No repeater station required.
- Communication can be established between two points within short time.
- Interception and jamming is difficult.
- Destruction by enemy is not possible.
- Communication over inaccessible terrain is possible.

Fill in the blanks

- (i) Satellite takes Hrs to revolve around the earth
- (ii) Antenna of Satellite is known as Transponder
- (iii) Satellite used for inter continental communication is known as Inter Sat.
- (iv) Three satellites can be covered the whole world.
- (v) The frequency range of troposcatter communication is 100 Mhz to 10,000 MHz
- (vi) The angle at which antenna must be aimed to see the clear horizon is called horizon angle.

Write short notes on :-

- (i) **Troposcatter** :- It is one of the modern techniques of communication.

It works on the principle of scattering of radio waves. Troposcatter comn may be defined as a system of transmitting within the troposphere, microwaves in the UHF or SHF bands to effect radio communication between two points on the earth surface separated by moderate distance from 70 to 1000 Kms.

- (ii) **Satellite** :- A Satellite is an object which is revolving round the earth in a particular direction at a fixed direction from the earth in 24 hours.
- (iii) **Active Satellite.** This satellite acts as transponder. It receives the signal from earth station, amplifies it and retransmits it towards the earth station.

What are the type of Active Satellites ?

- (i) Synchronous Satellite (Geo Stationary)
- (ii) Non Synchronous Satellite

What are the most commonly used satellite frequencies ?

The most commonly used satellite frequency bands are the C-band, Ku band and Ka band.

State True or False

- | | | |
|---|---|-----|
| (i) Internet communication is a part of Satellite Comn | - | T/F |
| (ii) The range of Troposcatter communication is 10 Kms | - | T/F |
| (iii) Moon is a natural satellite of earth | - | T/F |
| (iv) USSR was the first country to put the satellite in Space | - | T/F |
| (v) Power supply system is required in Active Satellite | - | T/F |
| (vi) The first Indian domestic satellite is Aryabhata Space | - | T/F |

CHARGING SETS**Fill in the blanks :-**

- (i) Chg Set 300 W gives an output of 20 amps current at 15 volts
- (ii) Capacity of petrol tank of Chg Set 300 W is 3.5 litres
- (iii) With Chg Set 300 W Four 6V batteries can charge
- (iv) The Chg Set 300 W has an automatic start facility by using Secondary battery
- (v) HD 30 oil is used in Chg Set 300 W

What are the points to be ensured before starting the Chg Set ?

The points to be ensured are :-

- (i) Keep the engine and batteries in level position
- (ii) Check HD 30 Oil level and petrol tank
- (iii) Check the electrolyte level batteries and top up with distilled water
- (iv) Remove the battery stoppers to allow the air/gas produced inside the batteries during the charging to escape
- (v) Keep the ampere knob on 'O' position (Fully anticlockwise).
- (vi) Connect the batteries to the terminals

Write down the characteristics of Chg Set 300 W ?

- (i) It has the fuel tank capacity of 3.5 litres
- (ii) It has an automatic start using a secondary battery
- (iii) The Chg Set 300 W can charge two 12 V batteries and four 6 V batteries in series connection
- (iv) It gives an output of 20 amps at 15 Volts
- (v) RPM of the Chg Set 300 W is 2400
- (vi) Oil sump capacity is 1.5 litres

State True/False

- (i) Chg Set 300 W gives an output of 15 amps current at 10 volts - T/F
- (ii) Capacity of petrol tank of Chg Set 300 W is 2.5 litres - T/F
- (iii) With Chg Set 300 W Four 6V batteries can charge - T/F
- (iv) The Chg Set 300 W has an automatic start facility by using Secondary battery - T/F
- (v) HD 30 oil is used in Chg Set 300 W - T/F

Write down the description and facilities of Chg Set 300 W ?

Description :- This is a light weight charging set used for charging batteries in the field. It is rigid in construction and fit for carriage in a vehicle or on man pack or mule pack basis.

Facilities :-

- (i) It gives an output of 20 amps current at 15 Volts
- (ii) It has an automatic start using a secondary battery. Can also be started Manually by a rope.
- (iii) Capacity of petrol tank (73 NL) is 3.5 litres and that of oil sump 1.5 litres. It is essential that the level of oil is correct.
- (iv) The generator can charge secondary batteries of four 6 V batteries (in 2 bank of 2 batteries each) and two 12 V batteries (2 banks of 1 battery each).
- (v) The current output has to be adjusted as per the charging requirement. For eg. A battery has to be charged in 10 hours so if the capacity of a battery is 75 Amp hours than $75/10 = 7.5$.

Write down the component and control of Chg Set 300 W

- (i) Starting control knob. For auto start of the set.
- (ii) Amp meter . Shows the current out put in meter which can be adjusted by the knob.
- (iii) Stopping control to switch off engine.
- (iv) Carburetor needle. To adjust mixture of air and petrol gas.
- (v) Governor Manual Control. To adjust speed.
- (vi) Positive and Negative terminals. To connect battery banks.
- (vii) Petrol tank, Air Cleaner, Glass cup to filter the petrol, Oil sump and POL lock screw.

CONSTRUCTION AND MAINTENANCE OF LINES**What is Field Cable ?**

The term field includes WD and Carrier quad cables. Type of field cable used depends upon the following :-

- (i) Electric properties required for long lines greater electrical efficiency
- (ii) The amount of wear and tear likely to be suffered by the cables, during the process of being laid and which in use.
- (iii) Available means of cable laying
- (iv) Transport available

Define the fault 'Earth' ?

The 'Earth' is a fault caused due to the bare conductor of the line coming in contact with something which is connected directly or indirectly to earth.

What are the essential stores to carry by the Building Party ?

Building Party is part of a line det. This party to carry the following Stores :-

- (i) Cutting pliers with a insulating tapes
- (ii) Ladder
- (iii) Picks and shovel
- (iv) Hammer and jumper for fixing poles/bamboos in the ground, if required
- (v) Poles 16' (Octagonal) wooden telegraph
- (vi) Sufficient bobbins, nails spinyarn and copper sleeves for making joints
- (vii) Veh for carrying the cable, poles, ladders and other stores.

What are the technical parameters of a Cable JWD-1 ?

- (i) Consists of 3 steel and r copper wires with black polythene and nylon covering
- (ii) Speech range is 25 kms at 1.6 Khz using a field telephone set
- (iii) Drum No 5 or a dispenser pack is used for winding the cable for storage . Each drum contains 1.6 Kms of

cable. Weight of the cable with drum is 26 Kg.

(iv) Resistance of the cable per km is 156 ohms and cut of frequency is 10 Khz. Attenuation per km is 2.8 db.

Write down the composition of a line det ?

A field cable line detachment normally consist of a Det Commander and 3 Line men (1+3). One line man for laying the cable and 2 line men for building the cable route.

Write down the types of faults in the line ?

There are three types of faults in the line.

- (i) Disconnection (ii) Earth (iii) Contact and short

How many types of lines constructed in the Field Area ?

There are four types of lines are normally constructed in the Field Area.

They are Ground Cable, Aerial Line, Under ground cable and Submarine cable.

Write down the characteristics of a Field Cable ?

- (i) Provide good path for electricity
 (ii) Be strong and light weight
 (iii) Be insulated
 (iv) Be flexible

What are the facilities of Chg Set 300 W ?

- (i) It gives an output of 20 amps current at 15 Volts
 (ii) It has an automatic start using a secondary battery. Can also be started Manually by a rope.
 (iii) Capacity of petrol tank (73 NL) is 3.5 litres and that of oil sump 1.5 litres. It is essential that the level of oil is correct.
 (iv) The generator can charge secondary batteries of four 6 V batteries (in 2 bank of 2 batteries each) and two 12 V batteries (2 banks of 1 battery each).
 (v) The current output has to be adjusted as per the charging requirement For eg. A battery has to be charged in 10 hours so if the capacity of a battery is 75 Amp hours than $75/10 = 7.5$.

State True/False

- (i) Chg Set 300 W gives an output of 15 amps current at 10 volts - T/F
 (ii) Capacity of petrol tank of Chg Set 300 W is 2.5 litres - T/F
 (iii) With Chg Set 300 W Four 6V batteries can charge - T/F
 (iv) The Chg Set 300 W has an automatic start facility by using Secondary battery - T/F
 (v) HD 30 oil is used in Chg Set 300 W - T/F

Questions:

- Q 1. In the Army it is the duty of the **corps of signals** to provide communication support.
 Q 2. The range of Line Communication is from **8 to 10** KMs.
 Q 3. The telephone sets used are 'L', 'F', 'J' & **'EE8B'** type of sets.
 Q 4. The telephone sets works on **Magneto** signaling.
 Q 5. The telephone sets work on **3 Volts DC** Power obtained from **two** torch cells.
 Q 6. **What are the various types of test on Telephone set ?**
 Ans. (a) Bell test (b) Hand set test (c) Out going test and (d) Generator test.
 Q 7. **What are the various tests on Exchange Magneto 10 line ?**
 Ans. (a) Cord and plug test (b) Indicator / Incoming test (c) Night alarm test.
 Q 8. The power supply for switch board telephone 15 line for internal is Dry Battery **1.5V No.6 X 6 cells** provide a total of **Nine** volt voltage.
 Q 9. **Name any five facilities provided by Switch Board Telephone 15 line ?**
 (a) Can work with magneto / CB / CBS / auto exchange.
 (b) Has got both internal and external ringer.
 (c) Two exchanges can be looked to provide 30 line facility.
 (d) A lamp indicator and a ringing visual indicators provided to warn the operator above on incoming call.
 (e) Apart from dry battery, Power source can be provided by secondary battery also.
 (f) 15 lines are provided.
 (g) Lighting facility for the switch board is provided by means of specially designed lighting unit.

- Q 10. The consumption of electricity in 15 lines exchange is at 6 VDC for ringer is **220 MA** for Indicator is **30 MA** for night lamp is **180 MA** and for buzzer at 3 VDC is **30 MA**.
- Q 11. **Name Keys/sockets provided in the front panel of 15 line exchange ?**
 (a) Speak / Ring back forward key
 (b) Ring external / Ring internal key
 (c) Circular hand set connector 4 ways
 (d) Coupling Key
 (e) Speak / Monitoring key
 (f) Jack
 (g) Cord test Jack
 (h) Light on off Junction
 (j) Ring indicator lamp
 (k) LED
- Q 12. **Name the controls provided in back panel of the 15 line exchange ?**
 (a) Subscriber line terminal
 (b) External ringer output terminal
 (c) Earth terminal
 (d) Battery Switch
 (e) Twin Jack assembly
 (f) Parking Jack
- Q 13. The telephone field 5A / 5B has a optimum range of **30** kms with a line loss of **40** db.
 Q 14. The telephone field 5A / 5B is powered by 2 x 1.5V No.3 Cells or **3V** external Batteries.
 Q 15. The power consumption of telephone set 5A is **20 MA** and of set B is **15 MA**.
 Q 16. **Name the parts of a telephone set 5A / 5B ?**
 (a) Hand set (b) Cradle (c) KLR Switch (d) Battery compartment
 (e) TLR Screw (f) Line terminals
- Q 17. The switch board has been divided into two parts i.e., **front panel** and **back panel**.
 Q 18. The telephone set **5A** has threaded type of line terminals and **5B** has push type of line terminals.
 Q 19. **If the line is broken the following will take place during the line test :-**
 Ans. (a) Generator handle will move freely
 (b) Bell will not ring
 (c) Speech communication will not take place.
- Q 20. If the Generator handle of a telephone set moves stiffly it indicates **short circuit**.
 Q 21. **The various tests on Exchange magneto 10 line are ;**
 Ans. (a) Cord and plug test
 (b) Indicator / Incoming test
 (c) Night Alarm test
- Q 22. **Name the phrases used while operating exchange ?**
 Ans. (a) "Number please sir".
 (b) "You want number – Sir" ?
 (c) Sorry sir, number is engaged, sir ".
 (d) "I will ring you back sir".
 (e) "Call for you from – speak up please".
 (f) "have you finished, sir".
- Q 23. **How many types of calls can be connected in 15 lines exchange ?**
 Ans. (a) Normal calls or single calls. (b) Multiple calls or Breaching.
- Q 24. **What are the types of RT communication?**
 Ans. There are three types of RT communication: -
 (a) RT conversation
 (b) Unregistered messages
 (c) Formal messages
- Q 25. **What are the principles of standard procedure of layout of message?**
 Ans. (a) Brevity
 (b) Accuracy
 (c) Security
 (d) Speed

Q 26. **What are the parts of a message?**

- Ans. (a) **The Call** - identifies and indicates both the stations.
 (b) **The text** - conveys subject matter of the transmission.
 (c) **Ending** - indicates whether response is expected or not from the receptive.

Q 27. The types of messages are **unregistered messages** and **Formal messages**.

Q 28. A formal message will be written on a message form IAF is **4009**.

Q 29. There are **six** degrees of precedence given to the passing of a message.

Q 30. A **distant** signal center is the one where as message is received and a **local** signal center is one where a message is handed over for transmission.

Q 31. The urgency of the message is called **Precedence**.

Q 32. The time limit for clearance of a flash message (**Z**) is **15 minutes** and emergency message (**Y**) is **30 mnts**.

Q 33. OP immediate message is required to be cleared in **2 hours** and priority message in **4 hours**.

Q 34. The routine message must be cleared in **8 hours** and differed message with in **24 hours**.

Q 35. **How many types of security classifications are there ?**

Ans. There are five types of security classifications. These are :-

- (a) Top Secret (d) Restricted
 (b) Secret (e) Unclassified
 (c) Confidential

True or false

Q 36. TLR facility is available in telephone set 5B (F)

Q 37. Auto dial can be attached to telephone set 5B (F)

Q 38. The facility exists on both 5A/5B for remote operating (T)

Q 39. The last phrase used while operating exchange is Finished please ?
 – Finished Please? (T)

Q 40. To ring the caller the position of speak key is '**back**' and to ring the subscriber the position is **forward** (T)

Q 41. **15** lines exchange can work with magneto, CB, CBS or Auto exchange (T)

Q 42. **Coupling** key is used for when two exchanges are used. (T)

Q 43. **LED** indicates incoming call (T)

Q 44. Facility exists in both 5A/5B for remote operating. (T)

Q 45. Telephone set 5B is heavier than 5A (T)

Q 46. Batteries of a telephone are checked for leakage during weekly maintenance (F)

Q 47. Battery Voltage is checked during daily maintenance. (F)

Q 48. **Jack** is used to insert the plug.

Q 49. **Cord test Jack** is used to check the cord line of a unit.

Q 50. **Speak / Monitor** key has three positions.

Q 51. To monitor the call the key position is on **MON**.

Q 52. **Battery** switch has two positions.

Q 53. **Subscriber line** terminal is used for joining outside lines.

Q 54. **External ringer output** terminal is put on the terminal when external ringer is required to be used.

Q 55. **Parking Jack** is used to park auto call.

Q 56. In **H** position the range of Telephone field 5A/5B telephone is considerably increased.

Q 57. **The ending** part of a message indicates to the recipient whether he is expected to make any response or not.

Q 58. **The Call** part of the message identifies the station making the transmissions and indicates the status with which he wishes to commence call.

Q 59. **What are the common parts of all telephones ?**

- Ans. (a) Generator handle
 (b) L1 & L2 Terminals
 (c) Hand set
 (d) Microphone and Receiver
 (e) Press dial Switch
 (f) Cord
 (g) Terminals for hand set
 (h) Cradle switch for CB exchange.
 (j) S Battery compartment
 (k) Socket for handset

Q 60. **What all will take place during line test, if the line is broken.**

Ans.(a) Generator handle will move freely.

- (b) Bell will not ring
- (d) Speech communication will not take place.

Q 62. In column Date Time Group Date and time is entered in 6 figures.

Q 63. **What is a message?**

Ans. A message is a communication verbal or written sent on RT or on other circuits. It is framed according to a set of rules keeping in view the principles of BASS. All messages consist of three parts i.e., **The call, The text and The ending.**

Q 64. **What does the standard RT procedure achieve?**

- Ans.
- (a) Ensures uniformity through out the army.
 - (b) Uniformity is essential to security as it greatly reduces the amount of information given away to the enemy.
 - (c) It prevents misunderstanding and confusion.

Q 65. **Security classification** denotes the degree of secrecy mandatory in handling of a message. These are **five** in number.

Q 66. **Precedence** is urgency of a message and these are **six** in number.

Q 67. The code of differed message is **M**.

Q 68. The two types of communications are **Line communication** and **Radio communication.**

Q 69. **What are the functions of telephone set?**

- Ans.
- (a) It works on magneto signaling
 - (b) Calling is done by magneto
 - (c) CB calling and clearing is done
 - (d) It provides speech communication
 - (e) It works in all weather conditions.

Q 70. **Earthing** in a 10 line magneto exchange is effected by means of a 5 ft copper braid attached to the back of the switch board and an earth pin.

Q 71. The switchboard of a ten line magneto exchange is fitted with **twenty** lightening protectors each consisting of two blocks of moulded carbon.

Q 72. The external power supply for the 15 line exchange is provided by secondary portable lead acid 6V has been divided for internal supply into two parts i.e., **6V for Ring Relay** and **3V for speech and buzzer.**

Q 73. **What aspects are checked in the daily maintenance of telephone set?**

- Ans.
- (a) Clean and protect from dust and dirt.
 - (b) Check hard set and generator for breakage.
 - (c) Check batteries for leakage.
 - (d) Check switch board and cord.

Q 74. The battery of a telephone is changed if voltage is below **2.5V** during weekly checks.

Q 75. The telephone set 5A has **threaded** type of line terminals and 5B has **push** type of line terminals.

Q 76. **Give the abbreviations of the following type of precedence.**

- (a) Flash - **Z**
- (b) Emergency - **Y**
- (c) OP immediate - **Q**
- (d) Priority - **P**
- (e) Routine - **R**