

## UNIT – 4: WEAPON TRAINING

Content	Comprehension	Analysis	Synthesis	Evaluation
Weapon training	<p>Have an insight into weapon training for NCC cadets.</p> <p>Understand and apply knowledge in:</p> <ul style="list-style-type: none"> <li>i) the characteristics of a rifle and its ammunition.</li> <li>ii) Stripping, assembling, care and cleaning of .22 Rifle and 7.62 SLR.</li> <li>iii) Loading, cocking and unloading</li> <li>iv) Different positions for holding and aiming</li> <li>v) Group and snap shooting.</li> </ul>	Analyse the importance of becoming a skilled shooter.	Develop the qualities of patience and confidence; and become better individuals.	Worksheets, comprehension questions, discussion and activities.

# Unit-4

## Weapon Training

Learning to shoot has been man's basic instinct from the early ages. Early men went out into the jungle with bows, arrows and weapons for hunting and also used them to protect themselves from dangerous animals and enemies. As times progressed, more weapons evolved to include, sophisticated blade equipment's and, still later, cannons, rifles, machine-guns, tanks, battleships, war planes, rockets – and eventually nuclear weapons have made their way into the modern defence technology.



Bows end Arrows to Nuclear Weapons

### 1. EVOLUTION OF WEAPON

Weapons have always played a crucial role in the society, moulding and changing the course of history. They have destroyed civilizations and created new ones. Apart from their employment in warfare and other combat situations, they are also used for the maintenance of law and order and for border security.

Weapon training is a very important component of NCC Programme. Training of shooting with Rifles is an integral part of this programme. The fine art of shooting, teaches a person precision, accuracy, co-ordination of body movements, patience and confidence which all help to make him a better man in the public life. The shooting at the ranges helps an individual to master this as a sport and also to learn handling of a weapon for self-protection.

## 1.1 Characteristics of .22 Rifles, Stripping, Assembling, Care and Cleaning and Sight Setting



Weapon Training



Rifle .22

### Characteristics of Rifle

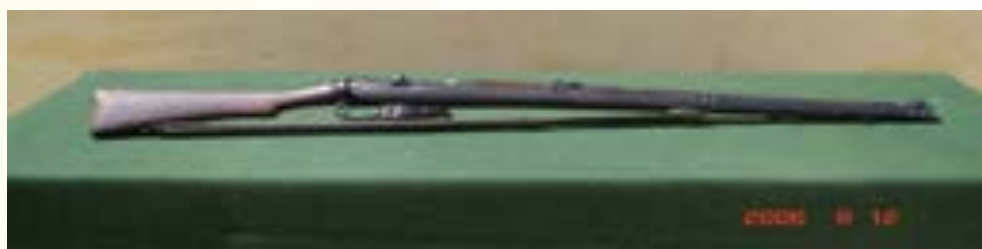
The major characteristics of Rifle .22 No MK-II, MK IV and Deluxe BA are:-

S. No.	Details	Rifle .22 No II MK IV BA	Rifle .22 Deluxe BA
(a)	Length	45"	43"
(b)	Weight	8 lbs 10 ½ OZ	6 LBS 2 OZ
(c)	Magazine Capacity	10 rounds	05 Rounds
(d)	Muzzle Velocity	2700 per sec	2700 per sec
(e)	Grooves in the barrel	06	06
(f)	Effective Range	25 yds	25 yds
(g)	Max Range	1700 yds at 33 angle	1700 yds at 33 angle

(h)	Calibre	.22	.22
(j)	Ammunition	.22	.22
(k)	Rate of fire: (i) Normal (ii) Rapid	05 Rds pm 10-15 Rds pm	05 Rds pm 10-15 Rds pm



*Rifles*



*Rifle .22 No 2 MK IV*



*Rifle .22 Deluxe*

## 1.2 Safety Precautions

**These includes:**

- Pushing forward the safety catch, raising and drawing back the bolt knob and then, examining the chamber and the magazine. When satisfied that both are clear, push the bolt knob forward and then down, press the trigger and apply the safety catch.
- Inspect the drill cartridges and ensure that there is no live ammunition.

## 1.3 Stripping

Before stripping, a check should be carried out as to whether the number on the left side of the body corresponds with the number on the back side of the lever of the bolt or not. The removal is done in the following sequence:-

- Removal of the bolt is done by raising the leaf back sight and pushing forward the safety catch. The left hand is kept under the magazine with the middle finger on the restraining catch. The bolt is withdrawn to the rear, the bolt head upwards turned and the back sight folded back.
- The magazine catch is pressed upwards and the magazine is taken out.

## 1.4 Assembling

The assembling of the rifle is always done in the reverse order. The magazine is checked to ensure that the magazine number is the same as that of the rifle. The magazine is inserted at its place and pressed. The cadet should ensure that the magazine is fixed in its place.

While assembling the bolt of Deluxe .22 rifle, the following points have to be borne in mind:-

- Bolt head should be fully tight.
- Bolt head and guide rib as well as cocking piece and steel lug should be in a line.
- Number of the bolt should tally with that of the rifle.
- Safety catch should be applied.



The bolt should be inserted by holding bolt lever with right hand and rifle with the left. The bolt should be pushed forward until it touches in the charger guide and the bolt head to be turned towards right till the click sound is heard. Now the trigger should be pushed forward and pressed and the safety catch should be applied.

### 1.5 Sight Setting

The sight should be set by pressing the thumb spring (Range increasing towards the muzzle side-adjust the thumb spring accordingly).

### 1.6 Care and Cleaning

The efficiency of the rifle depends on two factors. The care given to the rifle and the skill of the firer. The rifle is designed to stand up to active service conditions but performance will be considerably affected if it is subjected to unduly harsh conditions. The Rifle should be stripped, the butt trap to be opened and pull through and the oil bottle should be removed for cleaning. The pull through has three loops, nearest to the weight is for the gauze, the centre for cleaning the barrel with flannelette and the end zone for oiling the barrel and for use of the armourer.

## 2. LOADING, COCKING AND UNLOADING

In action, the soldiers' life may depend as much upon the rapid loading of rifle as upon the accuracy of his shooting. This underlines the importance of swiftness in bolt manipulation. The bolt ought to be properly lubricated.

### Ammunition and Charger:

No charger is provided for deluxe rifle. The ammunition is loaded one by one in the magazine. It is to be ensured that the ammunition is clean before firing.

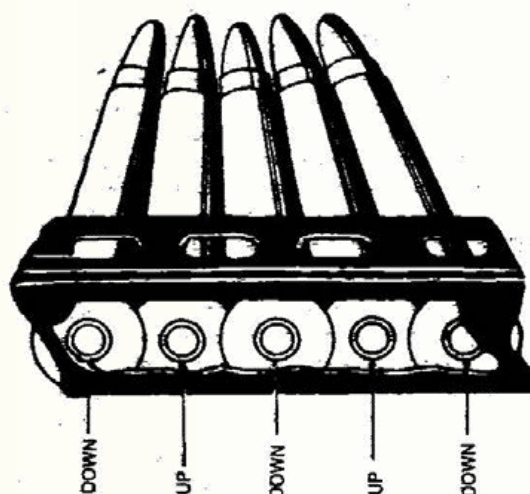


Fig-1 Correctly Filled Charger

## 2.1 Loading and Unloading:

Loading must be carried out on orders and no action will be taken without proper orders. It must be carried out clearly and in a set sequence. Fumbling and lack of determination would lead to jamming and delay.

## 2.2 Loading and Unloading in the Lying Position:

For this action in lying position, the following drill must be carried out:-

- To lie down, a long pace forward is to be taken with the left foot and at the same time, the rifle should be passed into left hand, grasping it at the point of balance. The right hand should be placed on to the ground in line with the left foot. During this movement, the rifle should be pushed forward and lowered to the ground. The left arm will now be extended to the front. The legs will be well apart. Now the rifle can be loaded as taught.
- The rifle can be unloaded without further orders. The right hand should be placed on the ground below the right shoulder. The left hand to be drawn up. Stand up as quickly as possible.

## 2.3 Lying Position and Hold

Lying position is the most comfortable position from which to fire. The three basic essentials of good shooting are:

- Position must be comfortable and hold so firm that the rifles gains a rock like steadiness.
- The firer must aim correctly.
- The trigger be pressed in such a way that aim is not disturbed.

### Position and Hold:

To get a stable position, the firer should get a feeling of rooted to the ground with:-

- Legs opened wide apart and body slanting to the left from the line of the target.
- Formation of the two triangles:-
  - Horizontal triangle formed by the three points where the chest leaves the ground, the left elbow and the right elbow. (Fig 1)



Fig-1

- ii) Vertical triangle as viewed from the front of firer the two of its sides are formed by the forearms, the base being the ground between elbows. In addition as a quick check, the shoulders should be level. (Fig-2)



Fig-2

### The Right Hand:

Bedded in as per the built of the firer, a firm grip providing steadiness and shoulder bent well forward to allow the forefinger between the first and second point to be actually on the trigger. The right hand must pull back the rifle very firmly in the shoulder and lock it there. The forefinger must take the first pressure on the trigger, whenever the butt is brought in to the shoulder.

### The Left Hand

The left hand acts as support to the forward part of the rifle there by helping to steady the rifle into the shoulder. The rifle should be held as far forward as possible, well clear of the magazine. No attempt to force the left wrist under the rifle should be made. The large pod of the muscle at the base of the left thumb protrudes and will automatically be pressing against the left side of the rifle



and that is balanced by a similar pressure by the left forefinger on the other side of the rifle. Left hand must never pull the rifle into the shoulder.



*Position of Left Hand*

#### **The Shoulder:**

The butt plate should be bedded into the shoulder. Improper bedding in will result in sore shoulder and possible flinching. The butt plate should meet the shoulder on the interior pad of the shoulder muscle joint and not in the 'hollow' of it.

#### **Position of the Head:**

The weight of the head should press the chin downwards and to the right against the butt. The head should be at such a distance that neither the cocking piece nor the finger, knock the face during firing.

#### **Breathing**

To aim correctly, hold breath while pressing the trigger.

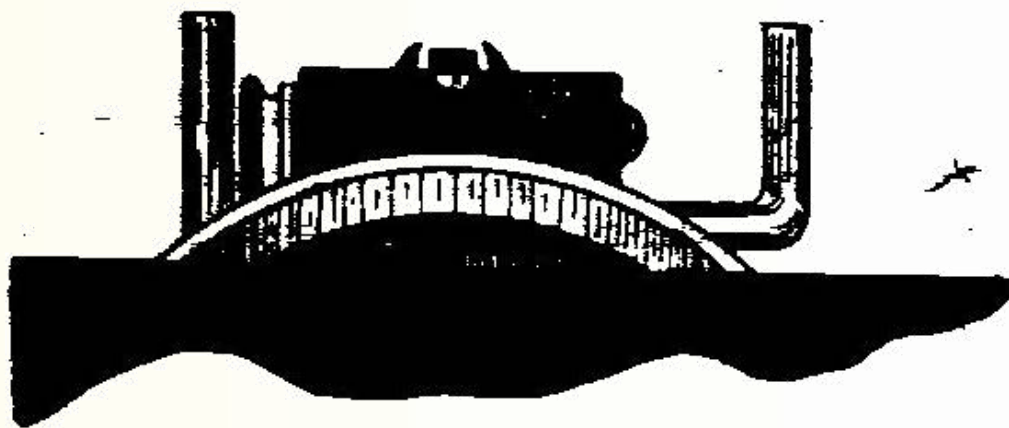
### **3. AIMING I - RANGE AND TARGETS**

Accuracy of the aim is essential for the successful shot. This is by far the most difficult operation, as the eye has certain limitations and there are influences affecting what it does. Nevertheless good shooting can only be obtained with consistency of aim. Normally 25 yds range is used for Deluxe .22 rifle.

#### **Aiming**

The laws of aiming are:

- Focus on the target so that a clear picture is formed on the retina of the eye and get the true centre of the target. Then with the eye focus to the foresight.
- Hold the rifle properly as has already been taught and keep it upright.
- Close the left eye and focus the foresight.
- See the foresight through the back sight 'U'. The foresight should be seen right in the centre of the U. The tip of the foresight must be aligned in the centre and in level with the shoulder of the U.



*Fig-1 Correct Aim*

Elevation is given to counter the force of gravity, while the bullet is in flight. The elevation depends upon the range of the target. This elevation is given automatically by adjusting the back sight.

### **Targets:**

The following targets are generally used by girl Cadets:

- For application firing, 1' x 1' target is used. The aim is to be taken at the bull which is the black, centre most circle.
- For grouping, 1' x 1' target with a white patch in the centre of the bull is used.
- For rapid firing, 6 inches figure target is used. The aim is taken at the centre of the figure.



## **3.1 Trigger Control and Firing a Shot**

### **Trigger Control**

The third essential for accurate shooting is trigger operation without disturbing the aim. To achieve this, perfect co-ordination between eyes, brain and operation of the fore finger on the trigger is required. To develop this co-ordination the following exercises have been designated:

### Trigger Operation Exercise No.1

**Object:** *To practice independent action of the index finger.*

**Method:** With the exception of the index finger, the right hand grips the left wrist as firmly as possible until the white is visible under the nail tips. The right index finger then press slightly on the wrist, on which action there must not be any increase in pressure from any part of the hand. Avoid wearing wrist watches during the exercise.

### Trigger Operation Exercise No. 2

**Object:** *To practice further muscular control of the hand.*

**Method:** For this hold the right knee clinched with the right hand less the index finger, held away in a hooked position as through round trigger. The index finger is made to move through an arc as if pressing the trigger. The only movement should be forming of the middle joint of the index finger to its tip.

### Exercise No. 3

**Object:** *To develop co-ordination between the right eye, brain and right hand index finger and practice muscular control of the hand.*

**Method:** For this, assume lying position and cock the rifle. The left hand leaves the rifle and supports the head. The left eye is closed. (If the firer cannot close left eye, blanket it out with the left hand). The right eye takes a line of vision, eye-foresight-any object on the ground in front of the line of vision when the brain impulse 'on aim' is transmitted by the eye, the index finger instantaneously presses the trigger.

### Exercise No. 4

**Object:** *To introduce an element of 'holding' and the co-ordination between right eye, brain and right index finger.*

**Method:** The exercise is the same as No 2 with slight differences. Hold the rifle with both the hands and take the aim on the target. Now the important thing is restraining the breathing. (This has been already dealt with under 'Holding'). During this exercise there should not be any round in the chamber.

### Exercise No. 5

**Object:** *To introduce an element of 'holding' and the co-ordination between right eye, brain and right hand index finger.*

**Method:** As for exercise 3, with the important addition of right hand holding, hold rifle steady and no quiver whatsoever being allowed. (When the firer attempts this exercise he must bring in the important item of restraining the breathing. This has already been dealt with under 'holding'). During its performance, no discernible movement of the rifle whatsoever is to take place. Magazines

must be removed to practice this exercise. When the young firer performs this exercise by getting two or three totally correct performances quickly, he is a potential marksman.

### Firing a Shot:

**Determination:** Accurate shooting is never achieved without concentration. Each time a shot is fired the firer must be fully determined that it is going to be perfect one.

**Turning the Shot:** From the time correct holding is achieved, more than five seconds should not be taken to fire a shot. Dwelling on the aim cause the eye and muscles to tire and results in bad shooting.

**Action on Range Being Ordered:** When the 'range' is given, the firer should adjust his sights and await for indication of the target.

### 3.2 Sequence of Firing a Shot:

**Aiming Position:** On coming into the aim, the firer must take the first pressure.

**Breathing:** Just before taking an aim, breathing must be gently restrained. It is important to coordinate so that, when the foresight comes to the point of aim, the breath is partially exhaled.

**Firing:** Immediately on 'correct aim', the second pressure will be taken and shot fired. For a second or two after firing, there should be no relaxation of the hold or movement of trigger finger or head.

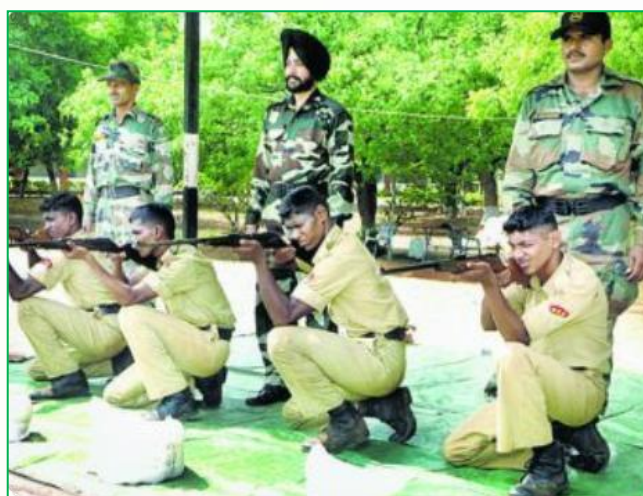
**Follow Through:** The hold and aim must be maintained until the bullet has left the barrel. Better still, fire should allow through until the bullet has reached the target.

**Declaration:** The firer declares, if the aim at the time of firing is not correct e.g. left, right, high or low. A correct shot should not be declared.

**Re-loading in the Shoulder:** Immediately after follow through or declaration, reloading at the shoulder should be carried out.

**Re-alignment:** Having reloaded, the firer should realign his sights approximately on the target.

**Limber-Up:** Before firing any practice, it is advisable to carry out trigger operation exercise No. 5 and sequence of action for firing a shot. This is termed as 'Limber-Up' and its aim is to assist in coordination and tuning up of muscles, eye and brain.



*Firing a Shot*

#### 4. RANGE PROCEDURE AND SAFETY PRECAUTIONS

##### Use of Red Flags

No firing should take place until all the red flags are hoisted and look-out men posted as per the range standing orders. One flag will always be on the top of the butt. Flags are a warning that the range is in use. A red flag displayed on the butt indicates that no firing should take place.

##### Suspension of Firing

If firing is suspended during the practice, owing to some unforeseen happening, weapons will be placed on the ground and the firer will stand clear.

##### Inspection of Weapons

The officer in charge of the firing point is responsible to ensure that all weapons are cleared and inspected before leaving the firing point. A further inspection will be carried out at the conclusion of firing.

During inspection, loading, and unloading, all the rifles must point towards the target. On the command 'Nirikshan ke lie Janch Shashtra' (Examine Arms) rifles will be held parallel to the ground and pointing in the direction of the target.

No one will go to the targets until all weapons have been unloaded, inspected and permission to go has been given by the officer in charge. Only the target papers will be brought back to see the results.

Only firers, coaches, the firing point officer and his assistants are allowed on the firing point. Waiting details must be at least 10yds from the firing point or in the shelter provided.

The following is the normal procedure on the firing points:

- a) The party to fire is brought within about 100 yds of the firing point.
- b) The practices to be fired are explained.
- c) Firers are detailed to targets.
- d) The coaches, ammunition party and look out men take up their positions.
- e) The first two details only form up behind their targets.
- f) On the order of 'Age Barh' (Detail Advance) the first detail will take position on the firing point.
- g) On the lowering of the red flag at the butt, the officer supervising the firing point may order his red flag to be taken down and give the order of 'Detail Advance'. The coaches check up their positions and correct them if needed, and give the word of command 'Limber Up'.

On this, the firers must align rifles as they have been taught. The officer will then give the order to load and carry on.



- h) The firing will start only after getting orders from officer-in-charge firing.
- j) On completion of fire, the firers must raise their right hand up, keeping the elbow on the ground.
- k) Officer-in-charge will give the word of command 'Khali Kar' (before this, he must ensure that all have finished). On this the firers will take their rifles onto their shoulders and move the bolt twice, press the trigger and stand up.
- l) The officer-in-charge will give the command 'Detail Report'. On this the firers would report '*Number ek rifle theek, do theek, teen theek and number char rifle theek*'. The report will be from left to right. (Normally four targets are used on miniature range).
- m) The first and last firer will say '*Number ek rifle theek*' and the rest will say '*Do theek, teen theek*' and so on.
- n) The details are changed by word of command and the new detail which has been waiting comes up while another detail forms up behind.
- o) Before the firers leave the range they will have a further weapon inspection. Each firer will be asked whether any live ammunition is left. It will be ensured that they have no live ammunition.

### Miniature Ranges

Only .22 ammunition will be used on miniature ranges. Scoring will be similar to that as laid down for classification ranges.

### 4.1 Aiming II – Alteration of Sight

#### Necessity

If during firing it is found that the elevation of the barrel is not correct i.e. when the rifle is fired correctly with correct aim, the shot goes high or low instead of hitting at the point of aim, it will be necessary, provided the time allows, to read just the setting of back sight.

#### Mean Point of Impact (MPI)

The central point of area covered by the group of rounds fired with consistent aim and held at the same aiming mark is called MPI.

#### Elevation

The amount of alteration necessary may be found from the following table which shows the change of MPI when the sight is changed by 100 yards:

Range Target	Rise or drop of MPI on Target
200 yards	6 inches
300 yards	12 inches
400 yards	18 inches
500 yards	24 inches

An alteration of 50 yards in the sight will bring half the effect shown above. 200 yards will double it on the target.

### Figure Target

If while firing at figure targets, the shots are observed to miss, either high or low, the firer should raise or lower his sights by one hundred yards, re-aim and fire. If the shot is still observed to miss the target, the sight should be altered by a further 100 yards.

### SHORT RANGE FIRING (.22 RIFLE)

Practice No.	Practice	Target	Range in Yards	Round	Instructions	Scoring
1.	Deliberate	1 ft	25	1	a) Position lying supported b) One practice of 5 rounds	Bull & Inner - 3 points Magpie - 2 points Outer - 1 point HPS - 15 Points

### LONG/SHORT RANGE 7.62MM RIFLE COURSE (FIRING BY CADETS OF SD/SW NCC)

Practice No.	Practice	Target	Range in Yards	Round	Instructions	Scoring
1.	Deliberate	4'x 4' / 1'x 1'	100/25	5	a) Position lying supported b) Position lying unsupported	Bull & Inner - 3 points Magpie - 2 points Outer - 1 point HPS - 15 points Bull & Inner - 3 points Magpie - 2 points Outer - 1 point HPS - 15 points

**Note:** Out of 12 rounds authorized per cadets, 2 rounds will be pooled for zeroing and re-classification of failures.

## Characteristics: 7.62mm SLR

1. **Calibre** – 7.62 mm.
2. **Length**
  - (a) With short butt – 1126.50mm (44.35in).
  - (b) With normal butt – 1139.20mm (44.85 in).
  - (c) With long butt – 1151.90mm (45.35in).
  - (d) Length of rifle with bayonet – 1397.00mm (55 in).
3. **Weight**
  - (a) Rifle only – 4.4 kg.
  - (b) Rifle with full mag – 5.1 kg.
  - (c) Rifle with full mag and bayonet – 5.392 kg.
  - (d) Bayonet – 0.283 kg.
  - (e) Empty Mag – 0.255 kg.
  - (f) Full mag – 0.709 kg.
4. **Rate of Fire**
  - (a) Normal – 5 rds per min.
  - (b) Rapid – 20 rds per min.
  - (c) Faster than rapid – 60 rds per min.
5. **Range**
  - (a) Effective range – 275 m (300 yds).
  - (b) Sight range – 200 yds to 600 yds
6. **Sight Radius** – 533.40 mm (21.77in).
7. **No of Grooves** – 06 (Six).
8. **Pitch** – 1 turn in 304.8mm (12 in).
9. **Twist of Rifling** – Right Hand.

## Amn (Cart SA Ball 7.62mm)

10. (a) Calibre – 7.62mm.
- (b) Weight of cart – 23.07gm  $\pm$  0.65 gm
- (c) Length of cart – 71.16mm  $\pm$  .76mm  
(2.80-0.03 in).

(d) Weight of bullet	-	9.33 ± 0.13 gm (144 ± 2 gm).
(e) Powder charge	-	NC Powder.
(f) Muzzle velocity	-	815m/2700ft ± 30 ft/S (at 27.43m(90 ft) from muzzle)
(g) Wt of cart case	-	10.89 gm.
(h) Wt of propellant charge	-	2.85 gm.
11. System of operation	-	Gas operation.
12. Mag capacity	-	20 rds.

### SUMMARY

- *Learning to shoot has been a basic human instinct from the early ages. Then men went out into jungle with bows, arrows and weapons for hunting.*
- *Weapon training is a very important component of NCC Programme. Training of shooting with rifles are an integral part of this programme.*
- *The fine art of shooting teaches a person precision, accuracy, co-ordination of body movements, patience and confidence which all help to make him a better man in the public life.*
- *The shooting at the ranges helps an individual to master this as a sport and also to learn handling of a weapon for self-protection.*
- *Rifle .22 No MK-II, MK IV and Deluxe BA have different characteristics in terms of weight, length, magazine capacity, velocity, range, calibre, ammunition and rate of fire.*
- *Precautions should be strictly followed when stripping, assembling, sight setting of the rifle is carried out.*
- *The efficiency of the rifle depends upon its care in terms of cleaning and the skill of the firer.*
- *In action the soldiers' life may depend as much upon the rapid loading of rifle as upon the accuracy of his shooting.*
  - *Lying position is the most comfortable position from which to fire. The three basic essentials of good shooting are: (a) Position must be comfortable and hold so firm that the rifles gain a rock like steadiness. (b) The firer must aim correctly. (c) The trigger be pressed in such a way that aim is not disturbed.*

- Accuracy of the aim is essential for the successful shot. This is by far the most difficult operation, as the eye has certain limitations and there are influences affecting what it does. Nevertheless, good shooting can only be obtained with consistency of aim.
- The third essential for accurate shooting is trigger operation without disturbing the aim. To achieve this, perfect co-ordination between eye, brain and operation of the forefinger on the trigger is required.

### Comprehension Questions

#### Q1. Answer the following in about 15 words:

- i) What are the basic essentials of a good firing or shooting?
- ii) Write sequence of action for stripping a rifle.
- iii) Write in point form why a group is formed in firing and why bullets do not pass through the same hole?
- vi) What are the materials required for cleaning a rifle?
- v) What are the points to ensure correct lying position?
- vi) Define aiming.
- vii) What is line of sight?

#### Q2. Answer the following in about 50 words:

- i) What is mean point of impact (MPI)?
- ii) What is the elevation at different ranges?
- iii) What is grouping capacity?
- vi) Describe the following. For what purpose are they used?
  - a) Drill cartridges
  - b) Pull through

#### Q3. Answer the following in about 75 words

- i) What are the major characteristics of Rif .22 No MK-II, MK IV and Deluxe BA?
- ii) What are the three basic essentials of good shooting?
- iii) What are the characteristics of good lying position?
- iv) What are the targets used for firing with Rif .22?
- v) What is the sequence of action while firing a shot?



- vi) What are the main points to be observed during snap shooting?

**Q4. Answer the following in about 150 words**

- i) What points must be kept in mind while assembling Rif .22?
- ii) What is the drill for loading and unloading in the lying position for Rif .22?

**Q5. Answer the following in about 250 words**

- i) Discuss laws of aiming?
- ii) What is the normal procedure for firing points?

**Let's Discuss:**

**Q6. Higher Order Thinking Skills (HOTS)**

- i) What safety precautions should be taken in the firing range?
- ii) Why should girl cadets in NCC be given basic weapon training?
- iii) Draw the picture of the Rifle .22 and label any five parts of it.