Preliminary Examination

Science and Technology

Time : 2½ Hrs. **(Pages 4)** **Marks : 60**

Note : (i) The question paper comprises of two sections A and B. You have to attempt both the sections.

(ii) All questions are compulsory.

(iii) Attempt Section-A and Section-B in separate answer booklet.

SECTION A

Q.1 (A) Fill in the blanks with suitable words and write completed statement : **2**

1. When acids and alkalies react together ..... .
2. Very fine particles mainly scatter ..... light
3. The apparent random wavering of the hot air rising above the heated roads is called ..... .

(B) Match the following : **2**

Group A	**Group B**
1. Manganese	a) Lanthanide
2. Cerium	b) Non-metal
	c) Metal
	d) Transition metal

(C) State true or false. If false correct it. **1**

1. Respiration is an exothermic reaction.

(D) Find the odd one out **1**

1. HCI, HNO_3, H_2SO_4, CH_3COOH

Q.2. Answer the following questions : **6**

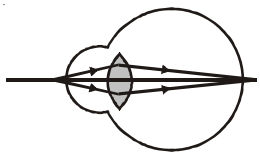
1. Metallic character decreases from left to right in a period. Give reason.
2. State the characteristics of magnetic lines of force.
3. Write the balanced equation for the following.
   a) Potassium iodide is added to Copper Chloride solution.
   b) Metallic sodium reacts with ethyl alcohol.

Q.3. Answer the following questions : (Any four) **12**

1. Explain pH scale with proper diagram.
2. a) State Joule's Law.
   b) A potential difference of 250 volts is applied across a resistance 1000Ω in an electric iron find (i) the current and (ii) Heat energy produced in Joules in 12 sec.
3. Explain the magnetic field due to current through a circular loop with the help of a diagram.
4. An object is placed at the following distances from a concave mirror of focal length 15 cm, turn by turn.
   a) 35 cm b) 30 cm c) 20 cm
   Which position of the object will produce :
   a) a magnified real image?
   b) a diminished real image?
   c) an image of same size as the object?
5. Explain the refraction observed in the atmosphere.

A.4. Answer the following questions : (Any one) **5**

1. Show with the help of diagram, how you would connect three resistors each of resistance 6 Ω, so that the combination has resistance of 9 Ω.
2. Given below is a diagram showing a defect of human eye. Study it and answer the following.
   1. Name the defect shown in figure.
   2. Give two possible reasons for this defect of eye in human being.
   3. Name the type of lens used to correct the eye defect.
   4. Draw a labelled diagram to show how the defect is rectified by using the lens.



Section B

A.1. (A) Fill in the blanks : **3**

1. ..... is necessary to maintain the number of individuals of a species.
2. The botanical name of garden pea is .....
3. Solidified ethanoic acid is called .....

(B) Name the following : **2**

1. Conducting tissues in plants
2. Raw materials of photosynthesis

(C) Find odd one out : **2**

1. K_2O, Na_2O, CaO, Al_2O_3
2. Lungs, Heart, Skin, Kidneys.

A.2. Answer the following questions : **6**

1. Draw neat and labelled diagram of human excretory system.
2. State and explain the types of neurons based on their functions.
3. In the absence of honey bees, the yield of sunflower goes down tremendously. Give reason.

A.3. Answer the following questions : (Any four) **12**

1. Explain the term 'Connection Links' by giving examples.
2. Describe the process of sex determination in human beings.
3. Explain budding in Hydra with the help of diagrams.
4. What is tropism? Explain growth dependent movements in plants.
5. What is nutrition? Explain its basic steps.

A.4. Answer the following questions : (Any one) **5**

1. Explain the formation of an ionic compound between metal and a non metal by transfer of electrons with Mg as the metal and Cl as a non-metal to illustrate your answer.

2. The solid element A exhibits the property of catenation. It is also present in the form of a gas B in the air which is utilised by plants in photosynthesis. An allotrope C of this element is used in glass cutters.

   a) What is element A?

   b) What is the gas B?

   c) What is allotrope C?

   d) State another use of allotrope C.

   e) Name yet another allotrope of element A which conducts electricity

Best of Luck