

Elite



(a centre of education)

Pre Board 06-07

Class: X
Subject: **Science**

Time: 2½ hr.
Marks: 60

GENERAL INSTRUCTIONS

1. The question paper consists of two sections: A and B.
2. Internal choices have been provided in some questions. Attempt any one of them.
3. Marks of the questions are indicated against them.
4. Questions 1 to 4 in section A and 17, 18 in section B are very short answers questions to be answered in **one word** or **one sentence** only.
5. Questions 5 to 8 in section A and 19, 20 in section B are short answer questions to be answered in about 30-40 words each.
6. Questions 9 to 14 in section A and 21 to 23 in section B are also short answer questions to be answered in about 40-50 words each.
7. Questions 15, 16 in section A and 24 in section B are long answer questions. to be answered in 70 words each.

SECTION – A

1. Identify the functional group in the following compounds: (i) $\text{CH}_3 - \text{C} = \text{O}$; (ii) $\text{CH}_3 - \text{CO} - \text{CH}_3$ (1)
2. Give one important use of remote sensing satellites. (1)
3. During formation of plaster of paris, controlled heating is essential. Why? (1)
4. Give the relation between commercial and S.I. unit of Energy. (1)
5. (a) In the given reaction: $2\text{NO}_2 + \text{O}_2 \rightarrow 2\text{NO}$ what will happen to the rate of reaction when 4 moles of NO are taken?
(b) What will be the effect of temperature on the concentration of products of an exothermic reversible reaction carried out in closed container? (2)
6. Pungent smelling gas A, reacts with O_2 in the presence of a catalyst platinum at 800°C to give another colourless gas B, which turns to brown gas 'C' in contact with air. A gives dense white fumes with HCl, an aqueous solution of A turns red litmus to blue and the aqueous solution of C turns blue litmus to red. Identify the substances A, B and C and write the chemical reactions taking place. (2)
7. An electrician is using two different wires in an electric circuit, one is a long and thick wire with green insulation and other is a short wire made of an alloy of tin. Identify the two wires and give use of each one of them. (2)
8. With the help of a neat and labeled diagram, explain the working of a solar concentrator. (2)
9. The image of a needle placed 45 cm from the lens is formed on a screen placed 90 cm on the other side of the lens. Find displacement of the image when the object is moved 5 cm away from the lens. (3)

10. A yellow crystalline solid non metal belonging to sixth group of periodic table is generally found in earth's crust in free form and is mined by a special technique? Explain the mining of this non metal with the help of a neat and labeled diagram. (3)

11. (a) Differentiate between 'prompt', 'delayed' and 'spontaneous' fission reactions.
(b) Give a brief account of principle of theory of nuclear fission (liquid drop model).

OR (3)

A piece of wire having resistance R, is cut into four equal parts.

(a) How will resistance of each part compare with the original resistance

(b) If the four parts are placed in parallels, how will the resistance of the combination compare with resistance of original wire.

12. (a) Why should the carbon-di-oxide gas be removed immediately during the production of lime?
(b) What is chloride of lime? Give the equation for the preparation of this compound. Mention any one use of this compound.

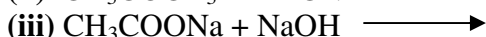
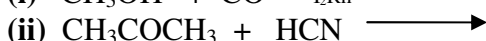
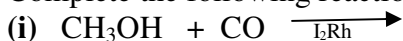
OR (3)

(a) How does tempering improve the quality of quenched steel?

(b) What is slaking of lime? Give the equation for the process.

(c) How does concrete differ from reinforced concrete?

13. Complete the following reactions: (3)



14. According to Kepler's second law of planetary motion, "The square of time taken by a satellite to complete one revolution around a planet is directly proportional to the cube of distance between the satellite and the centre of Earth." Derive this expression. (3)

15. A compound which exists as a colourless oily liquid is a strong dehydrating agent and is also called the 'King of Chemicals'.

Identify this compound and briefly explain its manufacture.

Also, give the two different types of reactions exhibited by this compound with an alkali like sodium hydroxide.

OR (5)

A metal, when exposed to air forms a protective layer of its oxide on its surface, which protects it from further corrosion. An alloy of this metal is very light and is used in making aircraft bodies and its parts. Identify the metal and explain the process of extraction of this metal from its chief ore.

16. (a) What is 'Total internal reflection' and 'critical angle'? (5)

(b) What are essential conditions for total internal reflection to take place?

(d) Explain the formation of 'Mirage' with the help of a neat diagram.

SECTION – B

17. What is the function of genes in an organism? (1)

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18. How is spinal cord protected? (1)
19. (a) Name the type of sex chromosome present in :
(i) human male (ii) human female
(b) What will be the sex of child produced if a sperm carrying 'Y' chromosome fertilizes the egg?(2)
20. Leaves of a healthy potted plants were coated with Vaseline to block the stomata. Will this plant remain healthy for long? State three reasons for your answer. (2)
21. Who proposed the double helical model of DNA? Mention its important features. (3)
22. (a) Explain the mechanism of gaseous exchange between tissue and blood. (3)
(b) What do you mean by transgenic organism?
23. Write the sequence of steps and processes in the primary and secondary treatments of the sewage before it is passed into the tertiary step. (3)
24. Describe the circulation of blood through the heart with the help of a neat and labeled diagram. Why is it called double circulation? (5)

OR

With the help of a neat and labeled diagram, describe the respiratory system in human beings. (5)

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