

SCIENCE & TECHNOLOGY
MODEL PAPER
2006-07

CLASS: X
60

Maximum Marks:
Time

Allowed: 2½ Hrs

General Instructions:

- *The question paper comprises of two sections A and B. You are to attempt both the sections.*
- *The candidates are advised to attempt all the questions of Section A separately and section B separately.*
- *All questions are compulsory.*
- *There is no overall choice. However, internal choice has been provided for five questions in Section A and one question of 3 marks category in section B. You are to attempt only option in such questions.*
- *Marks allocated to each question are indicated against it.*
- *Questions 1 to 5 in Section A and 18,19 in Section B are very short answer questions. These are to be answered in one word or one sentence only.*
- *Questions 6 to 10 in Section A and 20,21 in Section B are short answer questions. These are to be answered in about 30-40 words each.*
- *Questions 11 to 15 in Section A and 22, 23 and 24 in Section B are also short answer questions. These are to be answered in about 40-50 words each.*
- *Questions 16, 17 in Section A and 25 in Section B are long answer questions. These are to be answered in about 70 words each.*

SECTION –A

1. What will you prefer – soft iron or steel, to make an electromagnet?
1
2. When sulphur dioxide is passed through limewater, it becomes cloudy.
On
passing excess of sulphurdioxide, the cloudy appearance disappears.
Why? 1
3. What is denatured spirit and rectified spirit? Write one harmful effect of
alcohol consumption. Why the quality of
4. bleaching powder decreases gradually when exposed to air? 1

5. What are the defects of eye and how are they rectified?
1
6. What are the advantages and disadvantages of hydroelectricity?
2
7. Explain the manufacture of glass. Name the chemical compound used to get brown and blue coloured glasses.
2
8. Alcohol is used for sterilizing wounds, solvent for varnishes etc. Write two tests to show the presence of alcohol.
2
9. Write the chemical equation for the following:
a. Catalytic oxidation of ammonia
b. Sulphur with nitric acid.
OR
How hydrogen is manufactured for industrial purposes?
2
10. State any two points of difference between polar and equatorial orbits of artificial satellites. Write one application of each of these types of orbits.
2
11. Sodium hydroxide is a strong base and acetic acid is a weak acid. On what basis acids and bases are classified? Calculate the hydrogen ion concentration of Sodium hydroxide having 5 M concentration.
3
12. Draw a neat labelled diagram of the fixed dome type biogas plant and name the main constituent of biogas.
3
13. [a] With the help of ray diagrams, show the phenomenon of total internal reflection of light and the concept of critical angle for a transparent medium.
[b] Explain the formation of mirage?
OR
[a] What are the applications of chemical effect of electric current?
[b] Explain the process of electroplating with diagram.
3
14. How alcohol is prepared by fermentation? What will happen if the above product is oxidized with chromic anhydride? Write the chemical reaction when sodium is heated with alcohol produced from the above process?
OR
Write the chemical equation for the following:

- a. Addition reaction of hydrogen cyanide with propanone.
- b. Oxidation reaction of formaldehyde with Tollen's reagent.
- c. When a molecule of carbon dioxide is removed from a molecule of a carboxylic acid.

3

15. A metallic coil connected to a 220 V supply, has a resistance of 110 ohms.

How long will it take this coil to heat 1 kg of water from 20⁰ C to 70⁰ C?

Assume that the whole of heat produced by the coil is taken up by water.

3

16. Describe the manufacture of Sulphuric acid? Always concentrated Sulphuric acid should be poured in water and not the vice-versa. Why?

OR

Explain the extraction of aluminium form its ore.

5

17. Name the process involved in the release of energy from the sun. Explain the step wise process involved in it. Write two advantages of the above process.

OR

What is a nuclear reactor? With the help of a labelled diagram, describe how it is used to generate electricity.

5

SECTION –B

18. What are phytohormones? Name any one and write one function of it.

19. Who provided the evidence that gene is a part of a chromosome. Draw

any two types of chromosome based on the position of centromere.

1

20. Write two evidences for organic evolution and briefly explain it.

2

21. Explain the mechanism of photosynthesis, which occurs only in the presence of sunlight. Draw a labelled tracheal system of an insect.

2

22. [1] In blood transfusion if the blood group is mismatched what will happen. What is the reason for the above observation?

[2] Which living cells of the vascular bundle in plants helps in translocation of food? What is ascent of sap?

[3] Explain briefly the cardiac cycle.

3

23. [1] Draw a well-labelled diagram on reflex arc. Write the effect of sympathetic and parasympathetic nervous system on heart and eye.

2

[2] Write the function of the following hormones:

(1) Anti-diuretic hormone (2) Glucagon (3) Thyroxin (4) Prolactin. 1

24. [1] What is parthenogenesis? By which type of asexual reproduction does fungus reproduce? Draw the diagram for the same.

[2] What is double fertilization? Define the two types of pollination.

OR

1) Write a brief note on sexual cycles in human females.

2) Define the following terms:

i. Implantation ii. Gestation iii. Parturition iv. Menopause

3) Write a brief note on STDs

3

25. [a] Write any two occupational hazards and its cause.

[b] How eutrophications cause water pollution?
the use of incinerator and electrostatic precipitator?

[c] What is

[d] Write a brief note about sustainable development.