SCIENCE AND TECHNOLOGY
CLASS - X (THEORY)

TIME: $2\frac{1}{2}$ *Hrs.* **MAX. MARKS: 60**

***GENERAL INSTRUCTIONS*:**

1. *The question paper consists of two Sections A and B. You are to attempt both the sections.*
2. *The candidates are advised to attempt all the questions of section-A separately and Section –B separately.*
3. *All questions are compulsory.*
4. *There is no overall choice. However, internal choice has been provided in two questions of five marks category and one question of 3 marks category in Section A and one question of 2 marks category and one question of three marks category in Section-B.*
5. *Marks allocated to each question are indicated against it.*
6. *Questions 1 to 4 in Section A and 17, 18 in Section-B are very short answer questions. These are to be answered in one word or one sentence. One mark questions*
7. *Questions 5 to 8 in Section A and 19, 20 in Section-B are short answer questions. These are to be answered in 30-40 words each. Two mark questions*
8. *Questions 9 to 14 in Section A and 21 to 23 in Section-B are also short answer questions. These are to be answered in 40-50 words each. Three mark questions*
9. *Questions 15, 16 in Section A and 24 in Section-B are Long answer questions. These are to be answered in about 70 words each. Five mark questions*

SECTION- A

1. In what way the dynamic equilibrium is different from static equilibrium?
2. Why do non metals not displace hydrogen from dilute acids?
3. How ethanoic acid does reacts with alcohols and metals?
4. What are amines? What is its general formula? Name amine having one carbon atom?
5. a) Draw a well labeled diagram of blast furnace for smelting of iron?

   b) How is slaked lime chemically different from quick lime?
6. a) What are homogeneous and heterogeneous systems? Give two examples each.

   b) What is the use of scum in metallurgy?
7. a) What are basic and acidic oxides? Give examples

b) Write the composition of baking powder?

8. a) Write the various reactions of contact process?

   b) What is use of cisplatin?

   c) Name two substances used to denature alcohol?

   d) Biological reactions in our body are controlled by biocatalysts. What name is given to these catalysts? How is their activity influenced by changes in temperature? Draw the graph for this variation.

SECTION- B

9. What is meant by enrichment of nuclear reactor fuel?
10. Distinguish between real and virtual image?
11. How is tidal energy used as energy supplement?
12. What is meant by nuclear chain reaction? How is this reaction controlled? What happens if this reaction is not controlled?
13. What is a geostationary satellite? List four applications of artificial satellites. What is Remote Sensing? What type of orbit is suitable for these satellites?
14. a) With respect to air the refractive index of water and that of benzene are 1.33 and 1.50 respectively. Calculate the refractive index of benzene with respect to water

    b) A convex mirror used on a truck has 3m radius of curvature. If a bus is located at

    5m from this mirror. Find the position, nature and size of the image.

15. a) Express ohm's law mathematically. Draw a circuit diagram to verify Ohm's law. Present the relationship between the voltage applied across a conductor and the current flowing through it graphically

    b)How are ammeter and voltmeter connected in circuit?

16. a) State Fleming's left hand rule**.** What are the factors on which the strength of magnetic field produced by a current carrying solenoid depends? Draw a simple diagram of solenoid and also explain its definition

b) What is a fuse? How does it function? What are properties of a fuse wire? Explain the terms: Short Circuiting, Overloading

SECTION- C

17. How many groups are found in human karyotype?
18. Which of the following are biodegradable?
    Aluminum wire, aluminum foil, tea-leaves, synthetic fiber, wool, paper, ball point per refill, hay, polythene bags, animal bones, iron nails, plastic mugs, leather belts, DDT
19. Who proposed the biogenetic law? What does these laws states?
20. a) According to Darwin theory how a new species can be generates?
    b) What is incinerator?
21. Draw a labeled diagram to show the male reproductive part? Explain the various factors on which this whole system depends?
22. a) What is blood transfusion? Why the blood is checked before transfusion?
    b) What is the concept of sustainable development?
23. a) How gases are exchanged between blood and alveoli?
    b) How do endocrine glands send hormone to their target organs?
24. a) What is photolysis?
    b) Name two plants which can be propagated by layering?
    c) What is role of trypsin indigestive system?
    d) What is nutrition?
    e) What is difference between excretion and osmoregulation?