Tripura Board
Class X Science
(Physics and Chemistry)
Sample Paper 1

Time allowed: 2 hours   **Maximum Marks: 53**

General Instructions:

1. This question paper comprises 2 groups- A (Physics) and B (Chemistry). Youa are to answer questions from both the groups.
2. All questions are compulsory.
3. Use of calculator or any other electronic device in the examination hall is strictly prohibited.

Group A

PHYSICS

Full Marks- 27

Answer the following questions:

1) What is the unit of Resistivity?   **1**

2) What is the main constituent of biogas?   **1**

3) Choose the correct answer: **1**

   The direction of rotation of Barlow's Wheel is determined by

   a) Fleming's Left Hand Rule

   b) Fleming's Right Hand Rule

   c) Ampere's Swimming Rule

   d) None of these

4) What is Electromagnetic Induction?   **2**

5) Write two advantages of alternating current over direct current.   **2**

6) What is Myopia or short-sightedness? Show its remedy with the help of a ray diagram.

                                                                      (1+1)=2

7) During sunrise and sunset, the Sun appears to be red, while at noon, it appears to be white. Why?   **2**

8) Write two differences between Nuclear Fission and Fusion.   **2**

9) The equivalent resistance of two resistors connected in series and parallel are 6 ohm and $\frac{5}{6}$ ohm, respectively. Calculate the value of each resistor.   **3**

10) Write Joule's Laws of heating effect of current.   **3**

11) For a convex lens, where should an object be placed so as to get its real and magnified image? Show drawing a ray diagram.   **(2+1)=3**

Or

For a concave mirror, where should an object be placed so as to get its virtual and magnified image? Show drawing a ray diagram.   **(2+1)=3**

12)

(a) Why is magnification taken as negative for real images and positive for virtual images?

(b) Why is a convex mirror used as a rear-view mirror in vehicles?

(c) Power of a convex lens is 4.5 D. Find its focal length.   **[(1+1)+(½+1½)+1]=5**

Or

(a) Define:
   i. Centre of curvature of a spherical mirror
   ii. Pole of a spherical mirror

(b) State the mirror formula and its magnification.

(c) Using the same, find the distance at which an object should be placed for getting a real and inverted image at 45 cm using a concave mirror of focal length 20 cm.   **(2+3)=5**

Group-B
CHEMISTRY
Full Marks-26

13) Which of the following is an acidic salt?
   a) $CaCl_2$
   b) Na_2CO_3
   c) $KHCO_3$
   d) $MgSO_4$ **1**

14) State the composition of stainless steel.   **1**

15) Name the second member of ketones.   **1**

16) Name two greenhouse gases. **½+½=1**

17) Balance the following equations:
    i) $Fe + H_2O \rightarrow Fe_3O_4 + H_2$
    ii) $NH_3 + O_2 \rightarrow N_2O_5 + H_2O$ **1+1=2**

18) Oxidation and reduction take place simultaneously. Explain with one example. **2**

19) Zinc oxide is an amphoteric oxide. Support your answer with an equation. **2**

Or

Dilute H_2SO_4 can be kept in a container but not in a zinc container. Explain. **2**

20) Why should we conserve forests? **2**

21) i) Write the chemical name and formula of bleaching powder.
    ii) How is it prepared?
    iii) Write two uses of it. **1+1+1=3**

22) i) Name a metal which can be extracted by carbon reduction process from its ore.
    ii) Name the anode, the cathode and the electrolyte used in the electrolytic refilling of impure copper. What is anode mud? **1+2=3**

23. i) State the modern periodic law.
    ii) Why does the size of the atom decrease across a period?
    iii) Mention the position (period and group) of sodium in the periodic table.

    1+1+1=3

24. i) Complete the equation:

    $CH_3\text{-}CH_2OH + Na \rightarrow$

    ii) With one chemical test, show that ethylene is an unsaturated hydrocarbon.

    iii) Write the IUPAC name of the following:
    a) $CH_3\text{-}COOH$ b) $CH_3\text{-}CHOH\text{-}CH_3$ **1+2+2=5**

    Or

    i)   What is the difference between soap and detergent chemically?
    ii) Describe in brief the cleansing action of soap.
    iii) Why do soaps not form lather easily in hard water? **1+2+2=5**

Science

Biology

Time allowed: 1 hour   **Maximum Marks: 27**

General Instructions:
1. There are a total of 12 questions in four sections in the question paper. All questions are compulsory.
2. Section A contains questions number 1 to 3 of very short answer type questions of 1 mark each.
3. Section B contains questions number 4- 8 of short answer type (SA- I) questions of 2 marks each.
4. Section C contains questions number 9- 11 of short answer type (SA- II) questions of 3 marks each.
5. Section D contains question number 12 of long answer type question of 5 marks

SECTION-A

Answer the following questions in a word or in a sentence: **1x3=3**

1. Which part of our alimentary canal secretes HCl?   **1**
2. Which part of our brain controls body balance?   **1**
3. Write the full form of CFC.   **1**

SECTION-B

Answer the following questions in 20 words each: **2x5=10**

4. Why is adrenaline called an emergency hormone? Which gland secretes it? **1+1=2**

Or

Why is the intake of iodised salt advisable?   **2**

5. Sex of a child is determined by the father and not by the mother. Justify.   **2**
6. Write two differences between homologous and analogous organs.   **2**
7. Name one plant and one animal which reproduces by budding.   **2**
8. State the role of decomposers in an ecosystem.   **2**

Answer the following questions in 50 words each: **3X3=9**

9. What is reflex action? Represent a reflex arc with the help of a labelled diagram. **1+2=3**
10. Schematically represent Mendel's monohybrid cross up to the F_2 generation.   **3**

Or

What are fossils? State the importance of fossils as evidence of organic evolution. **1+2=3**

11. How does double fertilisation occur in flowering plants? **3**

SECTION-D

Answer the following question in 100 words. **5X1=5**

12. Draw a labelled diagram of L.S. of the human heart and show the circulation of blood through it with the help of arrow marks. Why is the wall of the left ventricle of the heart thicker than that of the right ventricle? **4+1=5**

Or

Describe briefly the structure of a nephron with the help of a labelled diagram. **3+2=5**