

**Tripura Board
Class X Science
(Physics and Chemistry)
Sample Paper 2**

Time allowed: 2 hours

Maximum Marks: 53

General Instructions:

1. This question paper comprises 2 groups- A (Physics) and B (Chemistry). You 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 happens to the resistance of a conductor when its area of cross-section is increased? **1**
- 2) Why is the box of a solar cooker covered with a glass plate? **1**
- 3) What is the commercial unit of energy? **1**
- 4) Why is the convex mirror used as a rear view mirror? **2**
- 5) How do ciliary muscles affect the functioning of eye? **2**
- 6) Why do stars twinkle at night? **2**
- 7) Identify the poles of the magnet in Figures (1) and (2) **2**

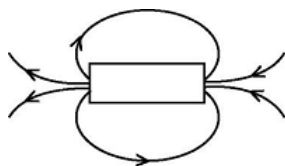


Figure - 1

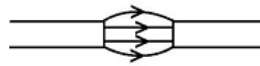
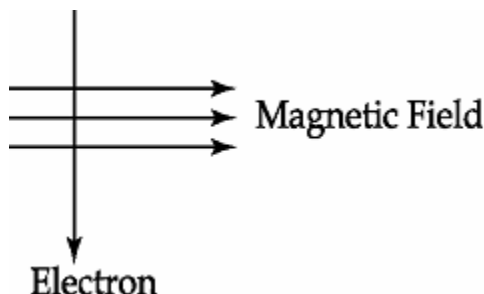


Figure - 2

- 8) An electron enters a magnetic field at right angles to it as shown. **2**



What will be the direction of force acting on the electron? State the rule used to find the direction of this force.

9) Why does a current-carrying conductor kept in a magnetic field experience force? On what factors does the direction of this force depend? Name and state the rule used for the determination of direction of this force **3**

10) Give an explanation for the formation of a rainbow **3**

11) **(2+1)=3**

(a) A concave mirror produces a three times enlarged image of an object placed at 10 cm in front of it. Calculate the radius of curvature of the mirror.

(b) What is a lens?

12)

- (a) State the rule to determine the direction of a
- Magnetic field produced around a straight conductor-carrying current
 - Force experienced by current-carrying straight conductor placed in a magnetic field which is perpendicular to it
 - Current induced in a coil due to its rotation in a magnetic field.

(b) Differentiate between AC and DC. Write one advantage of AC over DC.

$$[(1+1+1)+(1+1)]=5$$

Or

(a) What is a solenoid?

(b) Draw the pattern of the magnetic field produced around a current-carrying solenoid. Compare this field to that of a bar magnet.

(c) What happens to the magnetic field when the current through the solenoid is reversed?

$$(1+3+1)=5$$

Group-B
CHEMISTRY
Full Marks-26

- 13) Define the term rancidity **1**
- 14) Hydrogen is a highly inflammable gas and oxygen is a supporter of combustion, yet water which is a compound made of hydrogen and oxygen is used to extinguish fire. Why? **1**
- 15) Why carbon forms strong bonds with other carbon atoms, hydrogen, oxygen, nitrogen or sulphur? **1**
- 16) Give the molecular formula and the IUPAC name of a carboxylic acid used as a preservative. **1**
- 17)
The elements of the third period of the periodic table are given below: **2**
Na, Mg, Al, Si, P, S, Cl, Ar
- (a) Which atom is bigger Na or Mg? Why?
(b) Identify the most (i) metallic and (ii) non-metallic elements.
- 18) How were the positions of cobalt and nickel resolved in the Modern Periodic Table? **2**
- 19) **2**
- (a) Lithium, sodium, potassium are all metals that react with water to liberate hydrogen gas. Is there any similarity in the atoms of these elements? If yes, write the similarity.
- (b) Helium is a non-reactive gas and neon is a gas of extremely low reactivity. What, if anything, do their atoms have in common?
- 20) The burning of a candle is accompanied by both physical and chemical changes. Mention the observations which help to deduce that both physical and chemical changes are taking place. **2**
- 21) $X + YSO_4 \rightarrow XSO_4 + Y$
 $Y + XSO_4 \rightarrow \text{No reaction}$
Explain the reason for the above **3**
- 22) A gas is produced when conc. H_2SO_4 is added to solid sodium chloride taken in a test tube. The gas coming out through the delivery tube is passed over dry blue

litmus paper and then over a moist blue litmus paper. What would you observe?

Explain the reason with the help of a chemical equation **3**

23) Define isomerism? Illustrate with one example **1+2=3**

24) **1+1+1+2=5**

(a) Give the IUPAC name of the following:

i. $\text{CH}_3\text{CH}_2\text{OH}$

ii. $\text{CH}_3\text{CHBrCH}_3$

(b) What is difference between the formulas of two successive members of a homologous series?

(c) What kind of flame is produced when unsaturated hydrocarbons are burnt over a flame?

(d) Give an example of an addition reaction. Write the chemical reaction also.

Or

(a) What are the two main allotropes of carbon? Distinguish these two allotropes on the basis of hardness and electrical conduction.

(b) Why do aluminium articles have a longer life and attractive finish compared to many other metals?

(c) Explain the following terms:

(i) Ore

(ii) Gangue

What is a common feature in the electronic configuration of metal atoms?

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. What happens to a plant cell when we keep it in a hypotonic solution? 1
2. The organisms formed by asexual reproduction are considered as clones. Why? 1
3. What is the condition for germination pollen grain? 1

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

4. What is the importance of watershed management system? 2
5. Differentiate between biodegradable and non-biodegradable waste materials. 2
6. Pesticides are useful to farmers and yet, are considered as pollutants. Give reasons. 2
7. What are the two vital functions of the kidney? 2
8. Name the enzyme found in saliva. State the role of saliva in the digestion of food. 2

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

9. Which part of the brain controls involuntary actions? Write the function of any two regions of it. 1+2=3
10. What is regeneration? Describe with the help of neat diagram about regeneration in Planaria. 1+2=3

11. How is sex determined in human beings?

3

SECTION-D

Answer the following question in 100 words.

5X1=5

12.

(a) How does reproduction occur in (i) Malarial parasite, (ii) Leishmania

3+2=5

(b) What is meant by multiple fission? Explain the process.

Or

(a) Write the three main steps which take place in chloroplasts during photosynthesis.

(b) How does stomata open and close?

(c) Which raw material is made available to plants for photosynthesis when stomata are open?