

**Tripura Board
Class IX 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.

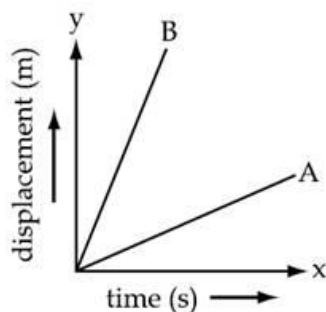
Group A

PHYSICS

Full Marks- 27

Answer the following questions:

- 1) If the velocity of an object is doubled, what is the change in its kinetic energy? **1**
- 2) How much work is done in lifting an object of mass 'm' to a height 'h'? **1**
- 3) Two cars A and B have their displacement time graphs as given below. Which car has a greater velocity?



- 4) A cork piece floats on water but an iron nail sinks in water. Explain why? **2**
- 5) It is easier to swim in sea water than in river water. Why? **2**
- 6) Why does a balloon filled with hydrogen rise up? **2**

- 7) 2
The gravitational force between two objects is F . How will this force change when
(i) The distance between them is reduced to half?
(ii) The mass of one of the objects becomes four times?

- 8) The gravitational force between two objects is 100 N. How should the distance between the objects be changed so that force between them becomes 50 N? 2

- 9) The driver of a train A travelling at a speed of 54 km/h applies brakes and the train retards uniformly. The train stops in 5 s. Another train B is travelling on the parallel track with a speed of 36 km/h. This driver also applies the brakes and the train retards uniformly. The train B stops in 10 s. Plot the speed–time graph for both trains on the same graph. Also calculate the distance travelled by each train after the brakes were applied. 3

- 10) A machine gun can fire 50 g bullets with a velocity of 150 m/s. A 60-kg stone is moving towards the machine gun with a velocity of 10 m/s. How many bullets must be fired from the gun to just stop the stone in its tracks? 3

- 11) (1+1+1)=3
(a) Two bodies of different masses have equal kinetic energy. Which one of the two will have greater velocity?
(b) Explain why the mountain roads are not straight but wind up gradually.
(c) One horsepower is equal to how many watts?

Or

- (a) List the two conditions necessary for the work to be done.
(b) Explain with the help of an example, that an object may possess energy even when it is not in motion?

- 12) [(1+2+2)]=5
(a) What is meant by potential energy of a body?
(b) A body of mass ' m ' is raised to the same vertical height ' h ' but through two different paths. What will be the potential energy of the body in the two cases? Justify your answer.
(c) The kinetic energy of an object of mass, ' m ' moving with a velocity of 5 m/s is 25 J. What will be its kinetic energy when its velocity is doubled?

Or

- (a) Write the difference between sound waves and light waves.
(b) Explain the propagation of sound (2+3)=5

Group-B
CHEMISTRY
Full Marks-26

- 13) What is the mass of 4 moles of Al atoms? **1**
- 14) Explain the distribution of electrons in sulphur. (Atomic number = 16). **1**
- 15) Why evaporation is called a surface phenomenon? **1**
- 16) The rate of evaporation of a liquid increases on heating. Explain **1**
- 17) How will you separate a mixture of mercury, oil and water? **2**
- 18) Mention three important applications of chromatography. **2**
- 19) What are isobars? Explain with an example **2**
- 20) Calculate the mass of 0.72 g molecule of CO₂. (At mass of C=12 u, O=16 u). **2**
- 21) How many grams of Sodium will have the same number of atoms as 6 grams of Magnesium? (Given Na =23 u, Mg = 24 u) **3**
- 22) What are the postulates of Dalton's Atomic Theory? **3**
- 23) Elements are classified as metals, non-metals and metalloids. Give any one property of each. Also give one example of each. **1+2=3**
- 24)
- (a) Name a non-metallic element found in (i) liquid and (ii) gaseous states.
- (b) Pick the metalloid from the following: Carbon, silicon, phosphorus and gold.
- (c) Which two properties of metals enable us to give metals the desired shape?
- (d) Name a metal which is liquid at temperature **5**

Or

Describe distribution of electrons in Bohr's Atomic Model

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 are the different ways in which water gets polluted? **1**
2. Which cycle is known as the perfect cycle in biosphere? Why? **1**
3. What is the advantage of the highly folded inner membrane of mitochondria? **1**

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

4. What are the advantages of organic farming? **2**
5. What harm can be caused to crops if irrigated excessively? **2**
6. What are the two important characteristics of Hydra (Coelenterata)? **2**
7. Which phylum of kingdom animalia has a spiny body? Give one example of it. **2**
8. Which divisions of the plant kingdom are called cryptogams? Why are they called so? **2**

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

9. State the type of cells Monerans have. Explain their structure and the types of nutrition they have **1+2=3**

10. How can you differentiate between Bryophyta and Pteridophyta? **3**

11. What is composite fish culture? Write the conditions necessary for this technique.

What are the limitations of composite fish culture? **1+2=3**

Or

Discuss any three structural features of bone tissue.

SECTION-D

Answer the following question in 100 words.

5X1=5

12. **(1+2+1+1=5)**

- (a) What are decomposers?
- (b) Give their roles in ecosystem.
- (c) What is the name of organisms found in the nodule of leguminous plants?
- (d) Explain the various forms in which carbon is found on the Earth.

Or

- (a) What are the general ways of preventing infections?
- (b) Under which of the following conditions, is a person most likely to fall sick? Why?
 - i. When she is recovering from malaria.
 - ii. When she has recovered from malaria and is taking care of someone suffering from chicken pox.
 - iii. When she is on a four-day fast after recovering from malaria and is taking care of someone suffering from chicken-pox.

[2+ (1+1+1=5)]