

Maharashtra State Board

Class IX Science and Technology

Sample Paper – 2

Time: 3 hrs

Max. Marks: 80

Note:

1. Use the same answer-sheet for Section A and Section B.
2. Draw well-labelled diagrams wherever necessary.
3. All questions are compulsory.
4. Students should write the answers of questions in sequence.

SECTION A

1.

(A)

- (a) Rewrite the following statements with suitable words in the blanks: **[3]**
- i. Electrons revolve around the nucleus in paths called
 - ii. Two or more elements combine to form a
 - iii. Retardation means acceleration.

- (b) State whether the following statements are True or False: **[2]**
- i. If an object experiences acceleration, a force must be acting on it.
 - ii. The density of water is 1000 g/cm^3 .

(B) Rewrite the following statements by selecting the correct options: **[5]**

- i. An atom has atomic mass number 14 and the number of neutrons in its nucleus is 8.
It is an isotope of
 - (a) Carbon
 - (b) Nitrogen
 - (c) Oxygen
 - (d) Phosphorus
- ii. If the force acting on a body is doubled, the acceleration with which it moves
 - (a) Remains the same
 - (b) Is halved
 - (c) Becomes four fold
 - (d) Is doubled
- iii. When a body is fully immersed in a liquid, the apparent loss in its weight
 - (a) Is equal to the weight of the liquid displaced
 - (b) Is more than the weight of the liquid displaced
 - (c) Is less than the weight of the liquid displaced
 - (d) Depends on the manner in which the body is immersed in the liquid

- iv. Work done
 - (a) Is always positive
 - (b) Is always negative
 - (c) Can be positive, negative or zero
 - (d) Can never be zero
- v. The mass of 5 moles of carbon is
 - (a) 36 grams
 - (b) 60 grams
 - (c) 12 grams
 - (d) 48 grams

2. Answer any five of the following: [10]

- i. State the uses of the following isotopes:
 - (a) Iodine
 - (b) Uranium
- ii. A person travels a distance of 72 km in 4 hours. Calculate the average speed in m/s.
- iii. Construct a food chain in the form of a flow diagram.
Grasshopper, Grass, Snake, Frog
- iv. Imagine that you and your friend are on the Moon. Will you be able to hear any sound produced by your friend? Give reason.
- v. Draw a suitable diagram to show the electronic configuration of the atom of chlorine.
- vi. State the units of power used in industry and for commercial purpose. Express them in watt.

3. Answer any five of the following: [15]

- i. State Newton's first law of motion. Why is it called the law of inertia?
- ii. Write a short note on buoyant force.
- iii. What were the conclusions drawn from the alpha particle experiment performed by Rutherford?
- iv. (a) State the law of conservation of energy.
(b) Give two uses of solar energy.
- v. What measures will you take to maintain a balance in nature?
- vi.
 - (a) What is molecular mass?
 - (b) Find the molecular mass of potassium nitrate (KNO_3).

4. Attempt any one of the following: [5]

- i. Write the postulates of Bohr's atomic model.
- ii. Explain the auditory aspects of the human ear.

SECTION B

5.

(A)

- (a) Find the odd one out: [2]
- Camphor, Copper, Iodine, Naphthalene
 - Sieve tubes, Companion cells, Guard cells, Phloem parenchyma

- (b) Match the following: [3]

Column A	Column B
i. Bajra	(a) Leaf spot
ii. Wheat	(b) Ergot
iii. Rice	(c) Rust
	(d) Wilt

- (B) Rewrite the following statements by selecting the correct options: [5]

- The temperature of a substance is the
 - Average energy of the molecules of the substance
 - Average kinetic energy of the molecules of the substance
 - Degree of hotness of the substance
 - Average potential energy of the molecules of the substance
- Staining is done before mounting because cell organelles
 - Look beautiful
 - Are clearly visible
 - Are magnified
 - Are diminished
- Which of the following is not a function of parenchyma?
 - Performing metabolic activities
 - Storing food
 - Acting like a packaging material
 - Providing strength to plant parts
- In, vascular tissues are present.
 - Thallophyta
 - Bryophyta
 - Pteridophyta
 - Fungi
- In a reaction, 5.3 g of sodium carbonate reacted with 6 g of ethanoic acid. The products were 2.2 g of carbon dioxide, 0.9 g of water and 8.2 g of sodium ethanoate. Which law is applicable in this case?
 - Law of constant proportion
 - Law of conservation of mass
 - Law of multiple proportion
 - Law of reciprocal proportion

6. Answer any five of the following: **[10]**
- i. Classify the following into solution, suspension and colloids.
Milk, sand in water, lemonade, smoke
 - ii. The mass of a body is 35 g and the volume is 7 cm³. Find the density of the material of the body.
 - iii. Lysosomes are called suicide bags. Give scientific reason.
 - iv. Draw a neat labelled diagram of a neuron or nerve cell.
 - v. Distinguish between manures and fertilisers.
 - vi. List the scientific or eco-friendly methods of waste disposal.

7. Answer any five of the following: **[15]**
- i. What is Tyndall effect? Give two instances from our day to day life where Tyndall effect is observed.
 - ii. What are the principles of prevention of a disease?
 - iii. State one function of each:
 - (a) Golgi apparatus
 - (b) Nucleus
 - (c) Endoplasmic reticulum
 - iv. What are the characteristics of epithelial tissue? List the different types of epithelial tissue.
 - v. Write a short note on high-yielding variety of crops.
 - vi. Describe the effects of improper management of solid waste.

8. Attempt any one of the following:

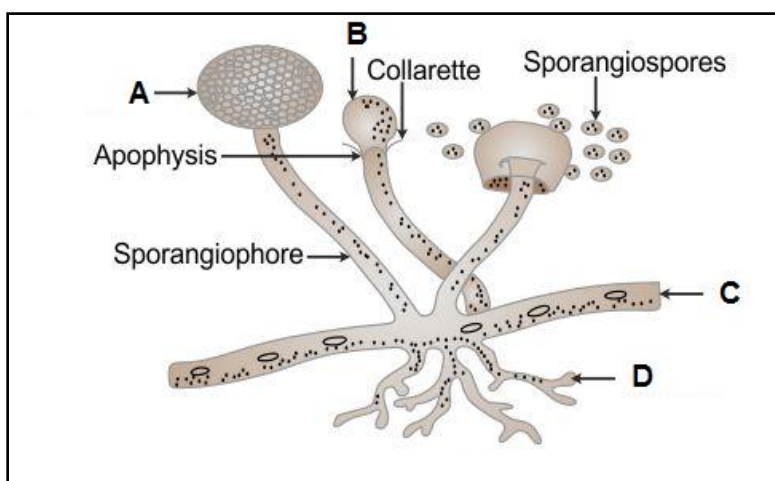
[5]

(A) Read the paragraph carefully and answer the questions which follow:

Substance A (2,8,1) reacts chemically with substance B (2,8,7) in a fixed proportion to form substance C. A and B are both poisonous substances. However, substance C is non-poisonous and is commonly consumed in our day to day life.

- What is substance C - an element, a compound or a mixture?
- Identify A, B and C. Give reasons for the same.
- Why can we still consume substance C without getting poisoned even though substances A and B are both poisonous?

(B) A fine cottony tuft was found growing on the surface of bread after two days. A temporary mount of few threads was prepared from this culture and observed under the microscope.



- What was the cottony growth found on the surface of the bread?
- Identify A, B, C and D.
- State the characteristics of the kingdom to which the given organism belongs.
- Give two examples of organisms which belong to this kingdom.