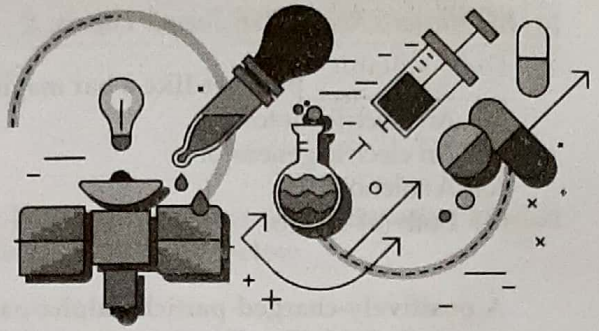


Sample Paper - 7



CLASS X
SCIENCE

Moderate Level

Maximum Marks: 80

SECTION - A

1. In which of the following chemical equations, the abbreviations represent the correct states of the reactants and products involved at reaction temperature?

- (a) $2\text{H}_2(\text{l}) + \text{O}_2(\text{l}) \rightarrow 2\text{H}_2\text{O}(\text{g})$
- (b) $2\text{H}_2(\text{g}) + \text{O}_2(\text{l}) \rightarrow 2\text{H}_2\text{O}(\text{i})$
- (c) $2\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{H}_2\text{O}(\text{l})$
- (d) $2\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{H}_2\text{O}(\text{g})$

2. Calcium phosphate is present in tooth enamel. Its nature is _____.

- (a) basic
- (b) acidic
- (c) neutral
- (d) amphoteric

OR

A solution turns red litmus blue, its pH is likely to be _____.

- (a) 1
- (b) 4
- (c) 5
- (d) 10

3. Why is a lake considered to be a natural ecosystem?

4. Why do we need to manage natural resources?

5. The most appropriate definition of a natural resource is that it is a substance/commodity that is

- (a) Present only on land.
- (b) A gift of nature which is very useful to mankind.
- (c) A man-made substance placed in nature.
- (d) Available only in the forest.

6. Which one of the following is used as rear view mirrors in vehicles?

- (a) Concave mirrors
- (b) Convex mirrors
- (c) Plane mirrors
- (d) Convex lens

7. Which one of the following is not a part of spectrum of white light?

- (a) Blue
- (b) Green
- (c) Black
- (d) Violet

8. A charge of 3 Coulombs is moved by spending 18 joules of energy across a certain potential difference. The potential difference across the path is _____.

- (a) 6 V
- (b) 54 V
- (c) 15 V
- (d) 21 V

9. _____ behaves like a bar magnet.

- (a) An electric motor
- (b) An electric generator
- (c) A solenoid
- (d) Both (a) and (b)

OR

A positively-charged particle (alpha-particle) projected towards west is deflected towards north by a magnetic field. The direction of magnetic field is _____.

- (a) Towards east
- (b) Downward
- (c) Upward
- (d) Towards south

10. A solar water heater cannot be used to get hot water on a _____.

- (a) Sunny day.
- (b) Cloudy day.
- (c) Hot day.
- (d) Windy day.

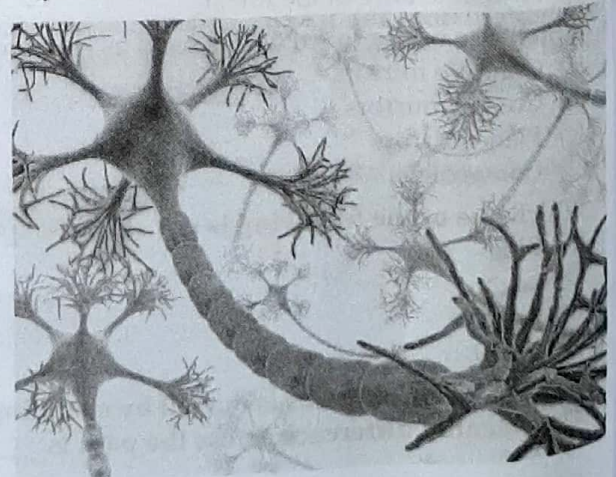
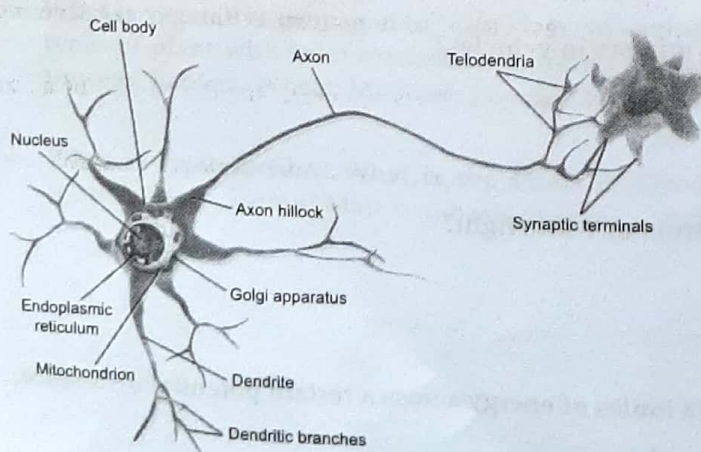
OR

Which part of the solar cooker is responsible for greenhouse effect?

- (a) Coating with black colour inside the box
- (b) Mirror
- (c) Glass sheet
- (d) Outer cover of the solar cooker

Answer question numbers 11(a) – 11(d) on the basis of your understanding of the following paragraph and the related studied concepts.

The sensory cells or receptors are in contact with dendrite of sense organs. When there is a stimulus which acts on the receptor a chemical reaction occurs which produces an electrical impulse in it. This impulse travels from dendrite of the sensory neuron to its cell body and then along the axon. At the end of the axon the electrical impulse release a tiny amount of chemical substance in synapse and a similar electrical impulse is started in the dendrite of the next neuron. In this way the electrical impulse is carried in the neurons till it reaches the relay neurons in the spinal cord and the brain. The relay neurons and motor neurons are connected in the similar way and helps bring electrical impulses from brain and spinal cord to the effectors like muscles and glands. Synapse ensures that the electrical impulse travels in one direction only. This is because the chemical substance is present on one side of the gap only. The main organs of human nervous system are brain, spinal cord and nerves. The spinal cord is a thick nerve which is located in the cavity of backbone. The upper end of spinal cord is attached to the brain. The nerves are distributed in all parts of the body. They are like wires. The two main parts of nervous system are Central nervous system (consisting of brain and spinal cord) and Peripheral nervous system (consisting of all nerves of the body). Peripheral nerves can further be divided into two parts which are Voluntary nervous system and Autonomic nervous system.



11. (a) What are the main organs of the human nervous system?
 (b) What is the role of synapse?
 (c) What is spinal cord?
 (d) What are the two main parts of the nervous system?

For question numbers 12 and 13, two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Select the correct answer to these questions from the codes as given below

- (a) A is true but R is false.
 (b) A is false but R is true.
 (c) Both A and R are true and R is correct explanation of the assertion.
 (d) Both A and R are true but R is not the correct explanation of the assertion.
12. **Assertion:** The focal length of the convex mirror will increase, if the mirror is placed in water.

Reason: The focal length of a convex mirror of radius R is equal to, $f = \frac{R}{2}$.

13. **Assertion:** In case of rainbow, light at the inner surface of the water drop gets internally reflected.
Reason: The angle between the refracted ray and normal to the drop surface is greater than the critical angle.

For question numbers 14, a table is shown. Study the table and answer the four questions that follow (each question carries 1 mark).

The position of six elements is shown in the periodic table.

1 Lithium	2 Berium	13	14 Carbon	15
A	E			D
B				
C				

14. (a) Identify the elements which have similar physical and chemical properties as the element A.
 (b) Identify the element E.
 (c) Among the elements A, E and D, which one has bigger size?
 (d) What is the family of elements of group 1 called?

SECTION - B

15. What is the difference of colours of the sun observed during sunrise/sunset and noon? Give explanation of each?

OR

What is the major difference between microscope and a telescope? Why an astronomical telescope is incorporated with a large light accumulating power?

16. Name and define S.I. unit of resistance. Calculate the resistance of a resistor if the current flowing through it is 200 mA, when the applied potential difference is 0.8 V.
17. What do you mean by a solenoid? Is the magnetic field produced by a solenoid similar to that of a bar magnet? If yes, how?
18. (a) What is an alloy? State the constituents of solder. Which property of solder makes it suitable for welding electrical wires?
 (b) Why does calcium float in water?
19. Write in brief the formation of coal and petroleum.
20. How many types of chemical reactions are there? Give an example for each.

OR

Answer the following questions:

- (a) What do you mean by olfactory indicators?
 (b) Which substance is injected into our body when stung by a honey-bee?
 (c) What is the name of the commonly used antacid?

21. Write in a line/two lines:

- (a) Excretion
- (b) Autotrophic nutrition
- (c) Villi

22. What are the changes seen in a girl on reaching puberty?

23. Draw a neat labelled diagram on sex determination in human beings.

OR

Draw the structure of a neuron and label different parts.

24. Name any two ancient water harvesting structures for each of the following states:

- (a) Rajasthan
- (b) Maharashtra
- (c) Bihar

SECTION - C

25. (a) Write the three laws of refraction of light. What do you mean absolute refractive index of a medium? How would you express the relation with the velocity of light in vacuum?

(b) The absolute refractive indices of two media 'A' and 'B' are 2.5 and 1.2 respectively. If the speed of light in medium 'B' is $2.5 \times 10^8 \text{ms}^{-1}$, find the speed of light in: (i) vacuum, (ii) medium 'A'.

26. An electric bulb, whose resistance is 50Ω , and another resistance of 6Ω are connected to a 12 V battery. Find (a) the total resistance of the circuit, (b) the current flowing through the circuit, and (c) the potential difference across the electric bulb and resistor.

OR

Name a device which converts mechanical energy to electrical energy. Write its working principle with a neat diagram.

27. (a) What are the various observations that help us to determine whether a chemical reaction has taken place?

(b) What is observed when carbon dioxide gas is passed through lime water for the following cases?
(i) For a short duration
(ii) For a long duration

(c) Why do we store silver chloride in dark colored bottles?

28. Answer the following questions:

- (a) A compound X is the major constituent which forms enamel of our teeth. What happens when the pH level in our mouth goes below 6? What is the best way to prevent decay of our teeth and why?
- (b) Why does lime water turn milky when carbon dioxide gas is passed into this solution? Give the reaction involved in the process.
- (c) Why is it difficult to sustain life on the planet Venus?

OR

Answer the following questions:

- (a) State any three physical properties of carbon compounds.
- (b) Carbon is a versatile element. Justify this statement.

29. Answer the following questions:

- (a) What is the major purpose of mucus?
- (b) What is the name of the enzyme present in saliva? What is its purpose?
- (c) What are the purposes of trypsin and lipase?
- (d) What is systolic pressure?
- (e) Which device is used to measure blood pressure?

OR

- (a) What do you mean by tropic movement?
- (b) Explain any three directional movements in plants.
- (c) How are the brain and spinal cord secured in humans?
- (d) Which is the master gland present in the brain?

30. What evidence do we have for the origin of life from inanimate matter?