

CBSE 10TH SCINCE SAMPLE QP-02

Time: 3 Hours

Max. Marks: 80

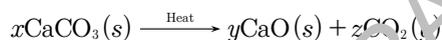
General Instructions:

- All questions would be compulsory. However, an internal choice of approximately 33% would be provided. 50% marks are to be allotted to competency-based questions.
- Section A would have 16 simple/complex MCQs and 04 Assertion-Reasoning type questions carrying 1 mark each.
- Section B would have 6 Short Answer (SA) type questions carrying 02 marks each.
- Section C would have 7 Short Answer (SA) type questions carrying 03 marks each.
- Section D would have 3 Long Answer (LA) type questions carrying 05 marks each.
- Section E would have 3 source based/case based/passage based/integrated units of assessment (04 marks each) with sub-parts of the values of 1/2/3 marks.

SECTION-A

Question 1 to 16 are multiple choice questions. Only one of the choices is correct. Select and write the correct choice as well as the answer to these questions.

1. Identify 'x', 'y', and 'z' in the following balanced reaction:



- (a) 1,1,2 (b) 2,2,1
(c) 1,1,1 (d) 2,1,2
2. Quick lime combines vigorously with water to form (A) which reacts slowly with the carbon dioxide in air to form (B). Identify the compounds (A) and (B).

	(A)	(B)
a.	Calcium carbonate	Calcium hydroxide
b.	Calcium hydroxide	Calcium carbonate
c.	Calcium	Calcium bicarbonate
d.	Calcium bicarbonate	Calcium

3. Rusting of iron can be prevented by:



- (i) Painting
(iii) Electrolytic refining
Which of the above are correct?
(a) 1, 2 and 3
(c) 2, 3 and 4
- (ii) Galvanisation
(iv) Alloying
(b) 1, 2 and 4
(d) 1, 2, 3 and 4

4. Identify the unsaturated compounds from the following :

- (i) Propane
(iii) Propyne
(a) (i) and (ii)
(c) (iii) and (iv)
- (ii) Propene
(iv) Chloropropane
(b) (ii) and (iv)
(d) (ii) and (iii)

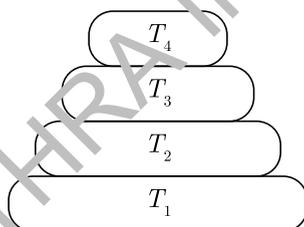
5. Which of the following is a feasible reaction?

- (a) $\text{Ba (s)} + \text{K}_2\text{SO}_4\text{(aq)} \longrightarrow \text{BaSO}_4\text{(aq)} + 2\text{K (s)}$
(b) $\text{Zn (s)} + 2\text{AgNO}_3\text{(aq)} \longrightarrow \text{Zn(NO}_3)_2\text{(aq)} + 2\text{Ag (s)}$
(c) $\text{Mg (s)} + \text{Na}_2\text{SO}_4\text{(aq)} \longrightarrow \text{MgSO}_4\text{(aq)} + 2\text{Na (s)}$
(d) $\text{Cu (s)} + \text{MgSO}_4\text{(aq)} \longrightarrow \text{CuSO}_4\text{(aq)} + \text{Mg (s)}$

6. Which of the following is an example of displacement reaction?

- (a) $\text{NaOH} + \text{HNO}_3 \rightarrow \text{NaNO}_3 + \text{H}_2\text{O}$
(c) $2\text{Hg} + \text{O}_2 \rightarrow 2\text{HgO}$
- (b) $\text{Cu} + 2\text{AgNO}_3 \rightarrow \text{Cu(NO}_3)_2 + 2\text{Ag}$
(d) $\text{FeCl}_3 + 2\text{NaOH} \rightarrow 3\text{NaCl} + \text{Fe(OH)}_3$

7. In the given figure the various trophic levels are shown in a pyramid. At which trophic level is maximum energy available ?

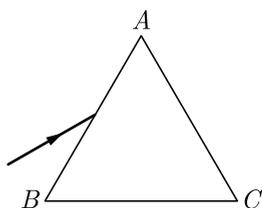


- (a) T_4
(c) T_1
- (b) T_2
(d) T_3

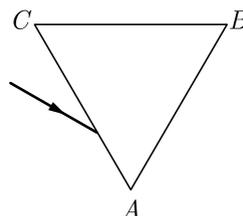
8. Process of conversion of light energy to chemical energy and splitting of water molecules into hydrogen and oxygen in plants is known as

- (a) Photosynthesis
(c) Plant nutrition
- (b) Photoperiodism
(d) Plant hormone functions

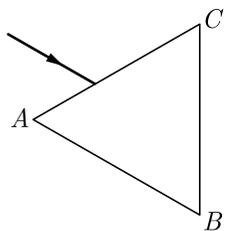
9. A prism ABC (with BC as base) is placed in different orientations. A narrow beam of white light is incident on the prism as shown in figure. In which of the following cases, after dispersion, the third colour from the top corresponds to the colour of the sky?



(i)

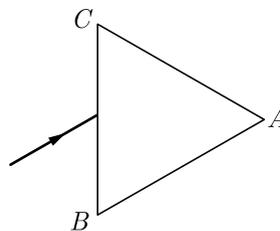


(ii)



(iii)

- (a) (i)
- (c) (iii)



(iv)

- (b) (ii)
- (d) (iv)

10. A round, green seeded pea plant (RR yy) is crossed with wrinkled, yellow seeded pea plant, (rr YY) the seeds produced in F₁ generation are
- (a) round and yellow
 - (b) round and green
 - (c) wrinkled and green
 - (d) wrinkled and yellow
11. Electrical impulse travels in a neuron from
- (a) Dendrite → axon → axonal end → cell body
 - (b) Cell body → dendrite → axon → axonal end
 - (c) Dendrite → cell body → axon → axonal end
 - (d) Axonal end → axon → cell body → dendrite
12. Some of the substances used in making of a modern safety match box are listed below :



- (i) Antimony trisulfide
 - (ii) Glass powder
 - (iii) Potassium chlorate
 - (iv) Red phosphorus
- The head of modern safety match stick contains :
- (a) 1 and 4
 - (b) 2 and 3
 - (c) 3 and 4
 - (d) 3 and 1

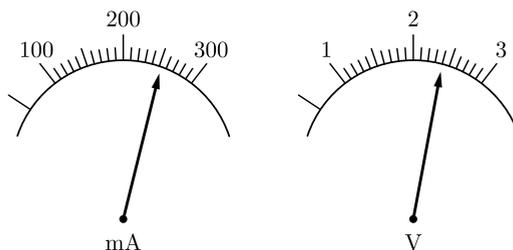
13. Which among the following is not the function of testes at puberty?
- (i) Formation of germ cells
 - (ii) Secretion of testosterone
 - (iii) Development of placenta
 - (iv) Secretion of estrogen
- (a) (i) and (ii)
 - (b) (ii) and (iii)
 - (c) (iii) and (iv)
 - (d) (i) and (iv)
14. In an electrical circuit two resistors of 2 Ω and 4 Ω respectively are connected in series to a 6 V battery as shown in the figure. The heat dissipated by the 4 Ω resistor in 5 s will be

19. **Assertion :** Aerobic animals are not truly aerobic.
Reason : Anaerobically they produce lactic acid.
 (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
 (b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
 (c) Assertion is true but Reason is false.
 (d) Both Assertion and Reason are false.
20. **Assertion :** Electric appliances with metallic body have three connections, whereas an electric bulb has two pin connections.
Reason : Three pin connections reduce heating of connecting wires.
 (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
 (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
 (c) Assertion (A) is true but reason (R) is false.
 (d) Assertion (A) is false but reason (R) is true.

SECTION-B

Question no. 21 to 26 are very short answer questions.

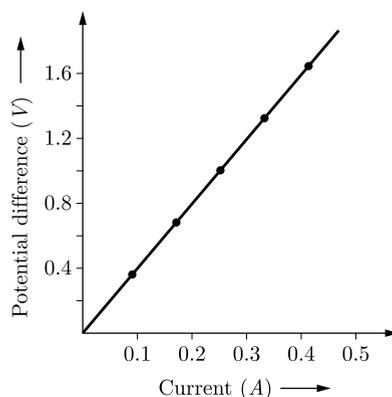
21. A certain tissue in a green plant somehow got blocked and the leaves wilted. What was the tissue that got blocked ?
22. Write one function each of the salivary glands, liver and pancreas.
23. A. Name two metals that start floating after sometime when immersed in water and why ?
or
 B. Explain how mercury is extracted from its sulphide ore (Cinnabar). Give equations of the reactions involved.
24. Why and how does water enter continuously into the root xylem ?
25. A The current flowing through a resistor connected in a circuit and the potential difference developed across its ends are as shown in the diagram by milliammeter and voltmeter readings respectively :



- (i) What are the least counts of these meters?
 (ii) What is the resistance of the resistor?

or

- B A $V-I$ graph for a nichrome wire is given below. What do you infer from this graph? Draw a labelled circuit diagram to obtain such a graph.



26. The cartoon below addresses a growing concern :



What effect might the use of pesticides have on humans if they are at the top of the food chain? Explain briefly.

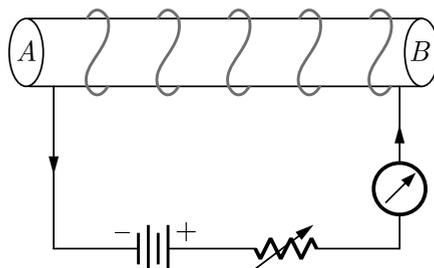
SECTION-C

Question no. 27 to 33 are short answer questions.

27. (i) An element X on reacting with oxygen forms an oxide X_2O as shown in figure. The oxide dissolves in water and turns blue litmus red. Predict the nature of the element whether metal or non-metal.



- (ii) A farmer stored copper sulphate solution in an iron container for agricultural use. After a few days, holes appeared in the container. Explain the chemical reaction that caused this and recommend a better material for storing the solution. ?
28. A. Define the two main methods of reproduction in living organisms.
B. List six specific characteristics of sexual reproduction.
29. A chemical factory combines hydrogen and oxygen to manufacture water. The balanced chemical equation assist in optimizing the reaction and minimizing waste of reactants. What does a balanced chemical equation convey ?
30. Ram placed an object in front of a convex lens of focal length 15 cm. The image formed is three times the size of the object. Calculate the two possible distances of the object from the lens.
31. The image of a candle flame placed at a distance of 30 cm from a mirror is formed on a screen placed in front of the mirror at a distance of 60 cm from its pole.
(i) What is the nature of the mirror ?
(ii) Find its focal length, if the height of the flame is 2.4 cm, find the height of its image.
(iii) State whether the image formed is erect or inverted.
32. A student named Riya is conducting an experiment using a coil wound around a long, hollow cardboard tube connected to a battery to demonstrate the concept of electromagnetism. Copy the diagram



- (i) Show the polarity acquired by each face of the solenoid.
 - (ii) Draw the magnetic field lines of force inside the coil and also show their direction.
 - (iii) Mention two methods to increase the strength of the magnetic field inside the coil.
33. (i) What is full form of (i) UNEP (ii) CFCs.
- (ii) On what basis are organisms grouped as producers, consumers and decomposer ?
 - (iii) Write two problems that would arise if there were no decomposer in are ecosystem.

SECTION-D

Question no. 34 to 36 are Long answer questions.

34. (i) Draw electron dot structure of methane molecule.
- (ii) Identify the functional groups present in the following compounds :
 - (a) C_2H_6O
 - (b) C_2H_4O
 - (iii) A mixture of oxygen and ethyne is burnt for welding. Why do you think a mixture of ethyne and air is not used for welding ?

or

- (i) Explain why carbon forms covalent bond? Give two reasons for carbon forming a large number of compounds.
 - (ii) Explain the formation of ammonia molecule.
35. What is vegetative propagation? Briefly describe various methods of vegetative propagation.

or

- (i) Draw diagram of human alimentary canal and label the following :
 - (a) Part in which starch digestion starts.
 - (b) Part in which bile is stored.
 - (c) Part in which nutrients are absorbed.
 - (d) Part in which water is absorbed.
 - (ii) Mention the role of hydrochloric acid in the stomach.
 - (iii) What function is served by the following :
 - (a) Gastric sphincter
 - (b) Anal sphincter
36. (i) What is an electromagnet ? List any two uses.
- (ii) Draw a labelled diagram to show how an electromagnet is made.
 - (iii) State the purpose of soft iron core used in making an electromagnet.
 - (iv) List two ways of increasing the strength of an electromagnet if the material of the electromagnet is fixed.

or

State the factors on which the resistance of a cylindrical conductor depends. How will resistance of a conductor change if it is stretched so that its length is doubled ?

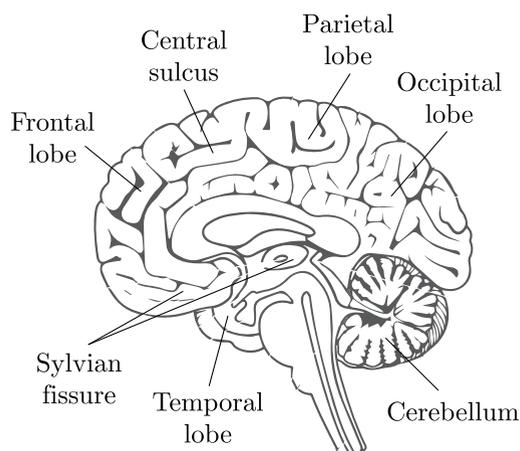
SECTION-E

Question no. 37 to 39 are case-based/data -based questions with 2 to 3 short sub-parts. Internal choice is provided in one of these sub-parts.

37. When a metal is attacked by substances around it such as moisture, acids, etc., it is said to corrode, and this process is called corrosion. The black coating on silver, green coating on copper and reddish-brown powder on iron surface are some examples of corrosion.



- (i) What is the name given to the corrosion of iron?
(ii) What is the formula of green colour coating on copper?
(iii) Name two methods to prevent corrosion of iron.
- or**
- (iv) Is corrosion a redox reaction?
38. The human brain, part of the central nervous system, controls body activities by processing sensory information and issuing instructions. It consists of the cerebrum, brainstem, and cerebellum, with the cerebrum being the largest and divided into two hemispheres. The brain is protected by the skull, cerebrospinal fluid, and the blood-brain barrier. However, it is susceptible to damage from trauma, strokes, degenerative diseases, and psychiatric disorders. Tumors can also affect the brain. Neuroanatomy studies its structure while neuroscience focuses on its functions.

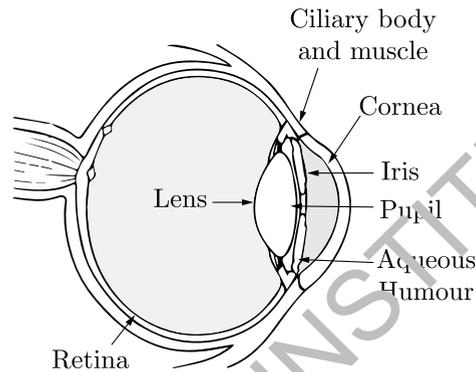


- (i) Which is the central part of the nervous system?
- (ii) What is the largest part of the human brain?
- (iii) What are the functions of the brain?

or

- (iv) What is the branch which studies the anatomy of brain?

- 39.** The human eye is like a camera. Its lens system forms an image on a light-sensitive screen called the retina. Light enters the eye through a thin membrane called the cornea. It forms the transparent bulge on the front surface of the eyeball as shown in the figure. The crystalline lens merely provides the finer adjustment of focal length required to focus objects at different distances on the retina. We find a structure called iris behind the cornea. Iris is a dark muscular diaphragm that controls the size of the pupil. The pupil regulates and controls the amount of light entering the eye.



The Human Eye

There are mainly three common refractive defects of vision. These are

(i) myopia or near-sightedness, (ii) hypermetropia or far-sightedness, and (iii) Presbyopia. These defects can be corrected by the use of suitable spherical lenses.

- (i) What is the function of pupil in the human eye ?
- (ii) What is the far point and near point of human eye with normal vision ?
- (iii) A student has difficulty reading the blackboard while sitting in the last row. What could be the defect the child is suffering from ?

or

- (iv) What is the function of iris in human eye ?

□□□□□□