CBSE EXAMINATION PAPER-2025

SCIENCE

(Solved)

Time allowed : 3 hours | Maximum Marks : 73

General Instructions :

Read the following instructions carefully and follow them :

i. This question paper contains **36 questions.** All questions are **compulsory.**

ii. This question paper is divided into **5 sections.**

iii. **Section A** – questions number **1 to 14** are multiple choice questions Each question carries **1 marks.**

iv. **Section B** – questions number **15 to 23** are very short answer Each question carries **2 marks.**

v. **Section C** – questions number **24 to 30** are short answer Each question carries **3 marks.**

vi. **Section D** – questions number **31 to 32** are case based questions

vii. **Section E** – questions number **33 to 36** are long answer Each question carries **5 marks.**

viii. There is no overall choice given in the question paper. However, an internal choice has been provided in few questions.

ix. Use of calculator is NOT allowed.

Section A

Question 1. A metal, M, displaces iron from aqueous solution of ferrous sulphate but fails to do so in case of aqueous solution of aluminium sulphate. The metal M is:

[1 Marks]

(A) Zinc

(B) Magnesium

(C) Copper

(D) Lead

Question 2.

A common feature observed in the crystals of washing soda, copper sulphate, gypsum and ferrous sulphate is that all:

[1 Marks]

(A) exhibit acidic nature

(B) are coloured

(C) exhibit basic nature

(D) have fixed number of molecules of water of crystallisation in one formula unit of these salts.

Question 3. A metal, 'X', on treatment with sodium hydroxide liberates a gas 'G'. It also liberates the same gas, 'G' on treatment with dilute sulphuric acid. Based on above information, 'X' and 'G' respectively are:

[1 Marks]

(A) Copper and Sulphur dioxide

(B) Zinc and Sulphur dioxide

(C) Copper and Hydrogen

(D) Zinc and Hydrogen

Question 4.

The values of a, b, c, and d in the following balanced chemical equation are respectively:

$a\ Pb(NO_3)_2 \longrightarrow (heat)\ b\ PbO + c\ NO_2 + d\ O_2$

[1 Marks]

(A) 2,2,1,4

(B) 1,1,1,2

(C) 1,1,2,1

(D) 2,2,4,1

Question 5. During electrolytic refining of copper, the anode, the cathode, and the electrolyte used respectively are:

[1 Marks]

(A) Impure copper, pure copper, acidified copper sulphate solution

(B) Pure copper, impure copper, sulphuric acid

(C) Impure copper, pure copper, distilled water

(D) Pure copper, impure copper, acidified copper sulphate solution

Question 6.

Which among the following is not a neural action controlled by the part of the human brain labelled 'X' in the figure above?

[1 Marks]

(A) Blood Pressure

(B) Salivation

(C) Hunger

(D) Vomiting

Question 7. The modes of reproduction in Spirogyra and Planaria respectively are:

[1 Marks]

(A) Regeneration and budding

(B) Regeneration and fragmentation

(C) Budding and regeneration

(D) Fragmentation and regeneration

Question 8. The plant hormones promoting rapid cell division in seeds and wilting of leaves respectively are:

[1 Marks]

(A) Auxins and Abscisic acid

(B) Cytokinins and Abscisic acid

(C) Gibberellins and Auxins

(D) Abscisic acid and Gibberellins

Question 9. In aerobic respiration, the steps are: breakdown of glucose to pyruvate and its further conversion to carbon dioxide. Both processes respectively occur in —

[1 Marks]

(A) Vacuole and Cytoplasm

(B) Chloroplast and Mitochondria

(C) Mitochondria and Cytoplasm

(D) Cytoplasm and Mitochondria

Question 10. In order to obtain large images of the teeth of patients, the dentist holds the concave mirror in such a manner that the teeth are positioned:

[1 Marks]

(A) at the focus of mirror.

(B) between pole and focus of the mirror.

(C) between focus and center of curvature of the mirror.

(D) at the center of curvature of the mirror.

Question 11. The possible way to restore clear vision of those people whose eyeball has elongated is the use of suitable:

[1 Marks]

(A) concave lens

(B) bifocal lens

(C) converging lens

(D) convex lens

Question 12.

The examples of natural and manmade (artificial) ecosystems are respectively:

[1 Marks]

(A) Forests and ponds

(B) Crop fields and lakes

(C) Lakes and gardens

(D) Crop fields and forests

Question 13.

Assertion (A): Silver chloride turns grey in sunlight.

Reason (R): Decomposition of silver chloride into silver and chlorine takes place by sunlight.

[1 Marks]

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

(B) Assertion (A) is false, but Reason (R) is true.

(C) Assertion (A) is true, but Reason (R) is false.

(D) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).

Question 14.

Assertion (A): The embryo gets nutrition from the mother's blood with the help of a tissue called placenta.

Reason (R): Placenta is a disc embedded in the uterine wall.

[1 Marks]

(A) Assertion (A) is true, but Reason (R) is false.

(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).

(C) Assertion (A) is false, but Reason (R) is true.

(D) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

Section B

Question 15.

A crystalline substance of green colour 'X' emits gases of characteristic odour when heated over a flame. It first loses water and changes colour. On further heating, it decomposes and produces a solid compound Y.

(a) Identify 'X' and 'Y.

(b) State the change in colour observed when 'X' is heated.

[2 Marks]

Question 16.

Give reasons:

(a) The male reproductive organ responsible for formation of germ cells is located outside the abdominal cavity.

(b) The roles of the glands, present along the path of the vas-deferens, are very significant.

[2 Marks]

Question 17.

How is lymph formed ? State its important function.

[2 Marks]

Question 18.

(a) Identify 'X' in the figure of human nephron shown below. What role does it play in the process of urine formation ?

(b) Why some substances are selectively reabsorbed from the initial filtrate of urine, as it flows along the tabular part of nephron ?

[2 Marks]

Question 19.

The values of absolute refractive indices of kerosene and water are 1.44 and 1.33 respectively. Compare the two media on the basis of their

(a) optical density

(b) mass density

(c) relative speed of propagation of light.

What do you infer on the basis of above comparisons?

[2 Marks]

Question 20. State two applications of Joule's heating in domestic electric circuits.

[2 Marks]

Question 21. Determine the total resistance of the parallel combination of three resistances of 2Ω, 4Ω, and 6Ω.

[2 Marks]

Question 22.

(a) Why are the organisms of first trophic level important in any food chain ?

(b) Justify the following statement :

'The flow of energy in an ecosystem is unidirectional.'

[2 Marks]

Question 23.

Establish the relationship between the commercial unit of electric energy and the SI unit of electric energy.

[2 Marks]

Section C

Question 24. Write the chemical formula of washing soda. How is it obtained from baking soda? List two uses of washing soda.

[3 Marks]

Question 25.

Observe the following diagram showing an experiment to determine the conditions under which a metal 'M' corrodes.

List your observations in each of the three cases A, B, and C with reasons, if the metal 'M' is generally protected against corrosion by the method of galvanisation.

[3 Marks]

Question 26.

(a) Write the name and one function of respiratory pigment found in human beings.

(b) Why do lungs always contain a residual volume of air ?

(c) Why is ATP known as energy currency of the living beings ?

[3 Marks]

Question 27.

(a) Define fertilisation.

(b) What happens to Zygote, Ovule, Ovary and Stamens after fertilisation in a flowering plant ?

[3 Marks]

Question 28.

The power of a lens is 0.25 D. Based on this information, find out

(a) The type of lens and its focal length.

(b) The eye defect for which it may be used as a corrective lens.

(c) The nature and size of the image formed by this lens when an object is placed between F and 2F from the optical centre of this lens.

[3 Marks]

Question 29.

(a) "The third wire of earth connection is very important in domestic electric appliances." Justify this statement.

(b) List two precautions to be taken to avoid the overloading of domestic electric circuits.

[3 Marks]

Question 30.

(a) Show the formation of Aluminium Nitride (AIN) by the transfer of electrons. [At. no. of Al = 13; At. no. of N= 7]

(b) "Ionic compounds are solids and are generally brittle and break into pieces when pressure is applied." Give reason to justify the statement.

[3 Marks]

Section D

Question 31.

In human beings, there are 23 pairs of chromosomes. Out of these 23 pairs of chromosomes (i.e. 46 chromosomes), 22 pairs of chromosomes are called autosomes and one pair of chromosomes. i.e. two chromosomes are called sex chromosomes. The sex chromosomes are of two types — 'X' chromosomes and 'Y chromosomes. The sex of a child (i.e. progeny), is decided at the time of fertilisation. In other words, at the time of zygote formation the sex chromosomes inherited from the parents of a child decide whether the new born will be a boy or a girl.

(1) What are chromosomes?

[1 Marks]

(2) Why is the pair of sex chromosomes in human males called mismatched pair?

[1 Marks]

(3) Show with the help of a flow chart that the statistical probability of getting a boy or a girl is 50 : 50.

[2 Marks]

(4)

Mention two examples of animals where sex is not determined genetically like human beings. Describe in brief the method of sex determination in these animals.

[2 Marks]

Question 32.

In order to obtain magnetic field lines around a bar magnet, a student performed an experiment using a magnetic compass and a bar magnet. The magnet was placed on a

sheet of white paper fixed on a drawing board. Using magnetic needle he obtained on the paper a pattern of magnetic field lines (as shown below) around the bar magnet.

(1) By convention, the field lines emerge from the north pole and merge at the south pole. Why? Give reason.

[1 Marks]

(2)

State the relationship between strength of the magnetic field and the degree of closeness of the field lines.

[1 Marks]

(3)

(i) No two field lines can ever intersect each other. Give reason.

(ii) The magnetic field in a given region is uniform. Draw a diagram to represent it.

[2 Marks]

(4)

Draw the pattern of the magnetic field lines through and around a current carrying solenoid. What does the pattern of field lines inside the solenoid represent ?

[2 Marks]

Section E

Question 33.

(a) What is meant by the term homologous series of carbon compounds ? Write molecular formula of any two consecutive members of homologous series of ketones.

(b) Write chemical equation of the reactions of ethanoic acid with

(i) Sodium hydroxide and

(ii) Ethanol (in the presence of an acid); giving the name of the products in each case.

(c) Draw the structure of the molecule of benzene.

[5 Marks]

Question 34.

(a) Analyse the given situations and interpret the possible reason for each :

(i) Iodine deficiency in diet increases the possibility of a disease of swollen neck in a person.

(ii) Some people in population may have very short heights (dwarfs).

(iii) Thick facial hairs develop in boys at the age of 10-12 years.

(b) Explain two reasons which necessitate the need of chemical communication in multicellular organisms.

[5 Marks]

Question 35.

(a) Differentiate between voluntary and involuntary action.

(b) Define reflex action. With the help of a flow diagram, show the correct sequence of path of Nerve impulse from place of its origin.

[5 Marks]

Question 36.

Analyse the following observation table showing variation of image distance (v) with object distance (u) in case of a convex lens and answer the questions that follow without doing any calculations :

(a) Determine the focal length of the lens. Give reason for your answer.

(b) Find magnification of the image formed in Observation No. 3.

(c) The numerical value of magnifications in cases of observation 1 and 2 is same. List two differences in the images formed in these two cases.

[5 Marks]