CBSE EXAMINATION PAPER-2025

SCIENCE

(Solved)

Time allowed : 3 hours | Maximum Marks : 69

General Instructions :

Read the following instructions carefully and follow them :

i. This question paper contains **32 questions.** All questions are **compulsory.**
ii. This question paper is divided into **5 sections.**
iii. **Section A** – questions number **1 to 1** are case based questions
iv. **Section B** – questions number **2 to 13** are multiple choice questions
v. **Section C** – questions number **14 to 21** are very short answer
vi. **Section D** – questions number **22 to 28** are short answer
vii. **Section E** – questions number **29 to 32** are long answer
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.

The students in a class took a thick sheet of cardboard and made a small hole in its centre. Sunlight was allowed to fall on this small hole and they obtained a narrow beam of white light. A glass prism was taken and this white light was allowed to fall on one of its faces. The prism was turned slowly until the light that comes out of the opposite face of the prism appeared on the nearby screen. They studied this beautiful band of light and concluded that it is a spectrum of white light.

(1)

List two conditions necessary to observe a rainbow.

[2 Marks]

(2) What happens to white light in the above case?

[1 Marks]

(3) Give any one more instance in which this type of spectrum is observed.

[1 Marks]

(4)

Draw a ray diagram to show the formation of a rainbow. Mark on it, points (a), (b) and (c) as given below :

(a) where dispersion of light occurs,

(b) where light gets reflected internally,

(c) where final refraction occurs.

[2 Marks]

Section B

Question 2. The property by virtue of which solid material can be drawn into thin wire is called:

[1 Marks]

(A) Malleability

(B) Ductility

(C) Resistivity

(D) Rigidity

Question 3.

Select from the following a hydrocarbon having one C–C bond and one C≡C bond:

[1 Marks]

(A) Butyne

(B) Benzene

(C) Cyclohexane

(D) Propyne

Question 4. The essential element taken up from the soil by the plants to synthesize proteins is:

[1 Marks]

(A) Iron

(B) Nitrogen

(C) Phosphorus

(D) Magnesium

Question 5.

Select TRUE statements about lymph from the following :

A. Lymph vessels carry lymph through the body and finally open into larger arteries.

B. Lymph contains some amount of plasma, proteins and blood cells.

C. Lymph contains some amount of plasma, proteins and red blood cells.

D. Lymph vessels carry lymph through the body and finally open into larger veins.

[1 Marks]

(A) C and D

(B) A and B

(C) A and C

(D) B and D

Question 6.

Plants like rose and banana have lost the capacity to produce :

[1 Marks]

(A) fruits

(B) seeds

(C) flowers

(D) buds

Question 7.

Ina bisexual flower the male gametes are present in the :

[1 Marks]

(A) anther

(B) filament

(C) ovary

(D) stigma

Question 8.

To get an image of magnification —1 on a screen using a lens of focal length 20 cm, the object distance must be :

[1 Marks]

(A) Less than 20 cm

(B) 40 cm

(C) 80 cm

(D) 30 cm

Question 9.

An optical device 'X' is placed obliquely in the path of a narrow parallel beam of light. If the emergent beam gets displaced laterally, the device 'X' is:

[1 Marks]

(A) glass prism

(B) plane mirror

(C) convex lens

(D) glass slab

Question 10.

An electric bulb is rated 220 V; 11W. The resistance of its filament when it glows with a power supply of 220 V is :

[1 Marks]

(A) 4400 Ω

(B) 20 Ω

(C) 440 Ω

(D) 400 Ω

Question 11.

The minimum number of identical bulbs of rating 4V; 6W, that can work safely with desired brightness, when connected in series with a 240 V mains supply is :

[1 Marks]

(A) 20

(B) 40

(C) 60

(D) 80

Question 12.

In the food chains given below. Select the most efficient food chain in terms of energy :

[1 Marks]

(A) Phytoplankton → Zooplankton → Small Fish → Big Fish

(B) Plants → Deer → Lion

(C) Plants → Man

(D) Grass → Grasshopper → Frog → Snake

Question 13.

Which one of the following gets biomagnified at different levels in a food chain ?

[1 Marks]

(A) Manure

(B) DDT

(C) Carbon monoxide

(D) CFC's

Section C

Question 14.

Define oxidation. Identify and name the substance oxidized in the following reaction:

$CuO + H_2 \rightarrow Cu + H_2O$

[2 Marks]

Question 15.

Show the formation of magnesium chloride by electron transfer. Write the name of the cation and anion present in the compound formed. (Atomic Number of Mg = 12, Cl = 17)

[2 Marks]

Question 16. 'Plants use a variety of techniques to get rid of waste material.' Justify this statement giving any four ways.

[2 Marks]

Question 17.

Explain with the help of a flow chart that in human beings father is responsible for the sex (male or female) of the child.

[2 Marks]

Question 18. Draw a ray diagram to show the refraction of light passing through an equilateral glass prism. Mark the angle through which the emergent ray bends from the

direction of the incident ray and also name it.

[2 Marks]

Question 19. Name the type of lens required by persons for the correction of vision called presbyopia. Write the structure of the lenses commonly used for the correction of this defect, giving reason for such designs.

[2 Marks]

Question 20. What are magnetic field lines? List two important properties of magnetic field lines.

[2 Marks]

Question 21.

How is zinc extracted from its ore? Name the processes involved in the extraction and write chemical equations for the reactions that occur during these processes.

[2 Marks]

Section D

Question 22.

Why do we balance a chemical equation? Name and state the law that suggests the balancing of a chemical equation? Balance the following chemical equation:

$Zn + H_3PO_4 \rightarrow Zn_3(PO_4)_2 + H_2$

[3 Marks]

Question 23. Define a precipitation reaction. Give its example and express the reaction that occurs in the form of a balanced chemical equation.

[3 Marks]

Question 24.

Design an activity to show that metals are good conductors of heat and have high melting points.

[3 Marks]

Question 25.

The digestion of food in human alimentary canal is a complex process. State the enzyme/salt present in the following and mention their function in the process of digestion

:

(i) Saliva

(ii) Bile Juice

(iii) Pancreatic Juice

[3 Marks]

Question 26.

State two limitations of electrical impulses in multicellular organisms. Why is chemical communication better than electrical impulses as a means of communication between cells in multicellular organisms?

[3 Marks]

Question 27.

If we want to obtain a virtual and magnified image of an object by using a concave mirror of focal length 18 cm, where should the object be placed? Use mirror formula to determine the object distance for an image of magnification +2 produced by this mirror to justify your answer.

[3 Marks]

Question 28.

The electrical resistivity of three materials A, B and C at 20°C is given below:

(i) Classify these materials as conductor, alloy and insulator.

(ii) Give one example of each of these materials and state one use of each material in the design of an electrical appliance say an electric stove or an electric iron.

[3 Marks]

Material	Resistivity (Ω m)
A	10^{17}
B	44×10^{-6}
C	1.62×10^{-8}

Section E

Question 29.

(i) What is regeneration? Give one example of an organism that shows this process and one organism that does not. Why does regeneration not occur in the latter?

(ii) Water in a pond appears dark green and contains filamentous structures. Name these structures and the method by which they reproduce. Explain the process.

[5 Marks]

Question 30.

(i)Name the part performing following functions in human male reproductive system :

(a) Carries sperm

(b) Production of male gametes

(c) Whose secretion makes the transport of sperms easier

(d) Provide suitable temperature for sperm formation

(ii) Write any two characteristics of sperms.

(iii) What are surgical contraceptive methods? Give the side effect caused by this procedure.

[5 Marks]

Question 31.

(i) Draw the pattern of the magnetic field lines for the two parallel straight conductors carrying current of same magnitude 'I' in opposite directions as shown. Show the direction of magnetic field at a point O which is equidistant from the two conductors. (Consider that the conductors are inserted normal to the plane of a rectangular cardboard.)

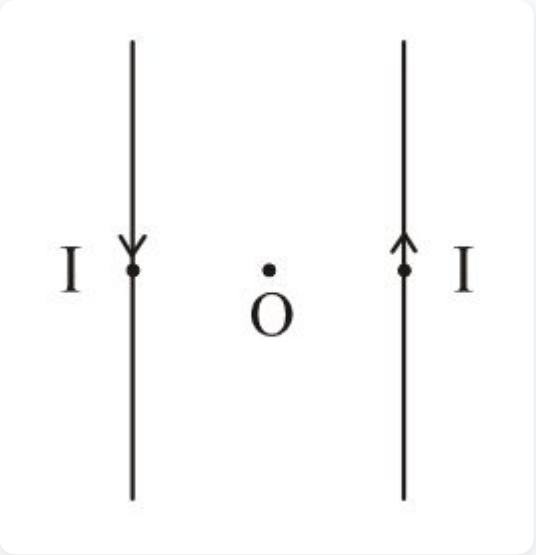
(ii) In our houses we receive A.C. electric power of 220 V. In electric iron or electric heater cables having three wires with insulation of three different colours — red, black and green are used to draw current from the mains.

(a) What are these three different wires called? Name them colourwise.

(b) What is the potential difference between the red wire and the black wire?

(c) What is the role of the wire with green insulation in case of accidental leakage of electric current to the metallic body of an electrical appliance?

[5 Marks]



Question 32.

(i) By using the given experimental set-up. How can it be shown that:

(a) a force is exerted on the current-carrying B conductor AB when it is At placed in a magnetic field.

(b) the direction of force can be reversed in two ways.

(ii) When will the magnitude of the force be highest?

(iii) State Fleming's left hand rule.

[5 Marks]

