PRE-BOARD-3 2025-26
SCIENCE (086)

Class: X **SET-1** Time: 3 hours
Date: 15.01.26 Max Marks: 80
Admission no: Roll no:

General Instructions:

(i) This question paper consists of 39 questions in 3 sections. Section A is Biology, Section B is Chemistry and Section C is Physics.

(ii) All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.

Section-A (Biology) **Marks**

1 Generally food is broken and absorbed within the body of organisms. In which of the following organisms is it done outside the body? 1

A. Amoeba B. Mushroom C. Paramoecium D. Lice

2 Identify the option with its correct function. 1

A. Pulmonary vein-takes impure blood from body parts.
B. Pulmonary artery-takes blood from lung to heart.
C. Vena cava-takes blood from body parts to left auricle.
D. Aorta-takes blood from heart to body parts.

3 In a nerve cell, the site where the electrical impulse is converted into a chemical signal is known as: 1

A. Axon B. Cell Body C. Dendrites D. Neuromuscular junction

4 Which of the following statements are true about the brain? 1

(i) The main thinking part of brain is hind brain.
(ii) Centres of hearing, smell, memory, sight etc are located in fore brain.
(iii) Involuntary actions like salivation, vomiting, blood pressure are controlled by the medulla in the hind brain.
(iv) Cerebellum does not control posture and balance of the body.

A. (i) and (ii)
B. (i), (ii) and (iii)
C. (ii) and (iii)
D. (iii) and (iv)

5 If pea plants with round and green seeds (RRyy) are crossed with pea plants having wrinkled and yellow seeds (rrYY), the seeds developed by the plants of F_1 generation will be: 1

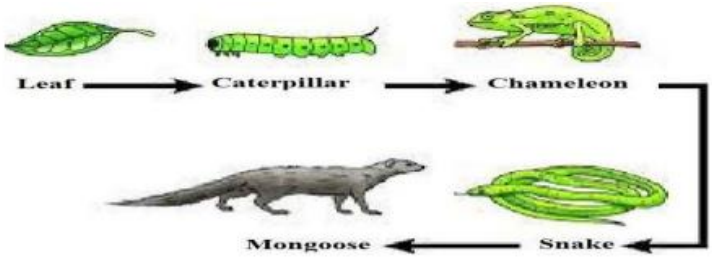
A. 50% round and green
B. 75% wrinkled and green
C. 75% wrinkled and yellow
D. 100% round and yellow

6 In 1987, an agreement was formulated by the United Nations Environment Programme (UNEP) to freeze the production of "X" to prevent depletion of "Y". "X" and "Y" respectively referred here are: 1

A. Ozone; CFCs B. CFCs; Ozone

C. CFCs; UV rays D. UV rays; Diatomic oxygen

7 Study the food chain given below and answer the questions that follow: 1



If the amount of energy available at the third trophic level is 100 joules, then how much energy will be available at the producer level?

A. 10 joules B. 200 joules C. 1000 joules D. 10000 joules

The following question consists of two statements – **Assertion** (A) and **Reason** (R). Answer these questions by selecting the appropriate option given below:

A. Both A and R are true, and R is the correct explanation of A.

B. Both A and R are true, and R is not the correct explanation of A.

C. A is true but R is false.

D. A is false but R is true.

8 Assertion(A): A human child bears all the basic features of human beings. 1
Reason(R): It looks exactly like its parents, showing very little variations.

9 Assertion(A): Biodegradable substances result in the formation of compost and natural replenishment. 1
Reason(R): It is due to breakdown of complex inorganic substances into simple organic substances.

10 (a) How is the ozone formed in the atmosphere? 2
(b) What is biological magnification?

11 <u>Students to attempt either option A or B.</u> 2

A. The leaves of a plant were covered with aluminium foil, how would it affect the physiology of the plant?

OR

B. How is lymph an important fluid involved in transportation?

12 Patient whose gallbladder is removed is recommended to eat less oily food. Why? 2

13 What are phytohormones? Name four different types of phytohormones and state one function of each. 3

14 A. "A trait may be inherited, but may not be expressed". Justify this statement with the help of a suitable example. 3

B. In a dihybrid cross, if 3200 plants were obtained in F_2 progeny, write the number of plants having traits:

i) Tall with wrinkled seeds

ii) Short with wrinkled seeds

15 Riya consumed bread with butter for breakfast. Help her to understand some steps in the process of digestion of the food taken by her by answering the questions given below. 4

Attempt either subpart A or B.

A. Which of these food items is rich in starch? In which part of the alimentary canal is the digestion of this component initiated? Name the enzymes, conditions required and the glands associated with the digestion here.

OR

B. Which of these food items contains fats? How is it digested?

C. How can the presence of starch be detected in the food item?

D. The figure given below represents parts of the human alimentary canal. Which of these parts will receive the secretions from the liver and pancreas.

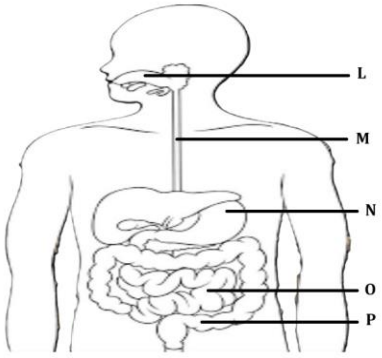


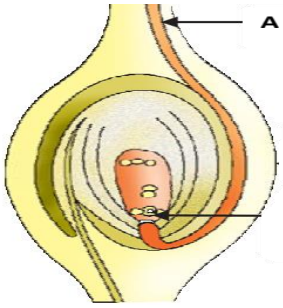
Figure: Human Alimentary canal

16 Attempt either option A or B. 5

A. i) Name the two types of pollination and differentiate between them

ii) Explain the post-fertilization changes that occur in the ovary of a flower.

iii) Label 'A' and write it's function.



OR

B. i) List any two advantages of producing plants through vegetative propagation.

ii) Explain the process of budding in Hydra.

iii) What happens when a spirogyra filament matures and attains a considerable length.

Section-B (Chemistry)

17 Which of the following is a decomposition reaction? 1

(a) $NaOH + HCl \rightarrow NaCl + H_2O$

(b) $Zn + CuSO_4 \rightarrow ZnSO_4 + Cu$

(c) $AgNO_3 + HCl \rightarrow AgCl + HNO_3$

(d) $CaCO_3 \rightarrow CaO + CO_2$

18 Which acid is present in tomatoes? 1

(a) Acetic acid (b) Lactic acid (c) Citric acid (d) Oxalic acid

19 Which of the following is the functional group in ethanol? 1

(a) –COOH (b) –CHO (c) –OH (d) –CO–

20 Which metal is stored in kerosene? 1
(a) Sodium (b) Iron (c) Copper (d) Aluminium

21 Which of the following metals is the best conductor of electricity? 1
(a) Iron (b) Silver (c) Lead (d) Mercury

22 Which gas is released when a metal reacts with an acid? 1
(a) Oxygen (b) Nitrogen (c) Hydrogen (d) Carbon dioxide

23 Carbon makes total number of single bond 1
(a)1 (b) 2 (c) 3 (d) 4

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24 **Assertion (A):** Carbon forms a large number of compounds because it can form strong covalent bonds with other carbon atoms. 1
Reason (R): Carbon has four valence electrons, which allows it to form bonds with other

25 Write the chemical formula for bleaching powder. How is it prepared? 2

26 Explain the following with an example 3
(i) Photolytic decomposition reaction
(ii) Electrolytic decomposition reaction
(iii) Thermal decomposition reaction

27 Attempt either option A or B. 3
[A] Formation of NaCl by electron dot structure.
OR
[B] Explain the following with suitable example
(i) Calcination (ii) Roasting (iii) Gangue

28 Case Base Question 4
Salt is an ionic compound that results from the neutralization reaction of an acid and a base. It is composed of related numbers of cations (positively charged ions) and anions (negative ions) so that the product is electrically neutral (without a net charge). They may be simple salts such as NaCl, KCl, and Na_2SO_4; acid salts like $NaHCO_3$ and NaH_2PO_4; or double salts like $KAl(SO_4)_2$. Some salt has a water molecule in it. Answer the following questions:
(a) What is water of crystallisation? Give an example.
(b) What happens when baking soda is heated? Give reaction
OR
(b) How many water molecule present in crystal of
(i) Copper sulphate (ii) Ferrous sulphate

29 Attempt either option A or B. 5
Draw the structures for the following compounds.
(i) Ethanoic acid
(ii) Bromopentane
(iii) Butanone
(iv) Hexanal
(v) Propanol

OR

A. Explain Esterification Reaction with an example.

B. Indentify A B C and D in the following reaction

(a) $CH_3CH_2OH \xrightarrow{KMnO4/OH-} A$

(b) $CH_2{=}CH_2 + H_2 \xrightarrow{Ni} B$

(c) $CH_3CH_2OH + Na \rightarrow C + D$

Section-C (Physics)

30 Refraction of light occurs because: 1

1. Light changes its speed when it enters from one medium to another.
2. Light travels with the same speed in all media.
3. The incident ray, refracted ray and normal lie in the same plane.
4. The wavelength of light changes in different media.

Choose the correct Option:

A. 1, 3 and 4 are correct

B. Only 1 and 2 are correct

C. 2 and 3 are correct

D. Only 4 is correct

31 A person with hypermetropia can see: 1

A. Near objects clearly

B. Distant objects clearly

C. Both near and distant objects clearly

D. Neither near nor distant objects clearly

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B. Both A and R are true, and R is not the correct explanation of A.

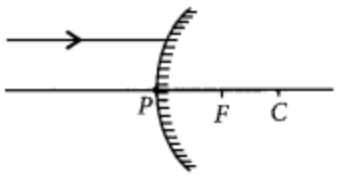
C. A is true but R is false.

D. A is false but R is true.

32 Assertion (A): A concave mirror can be used as a shaving mirror. 1

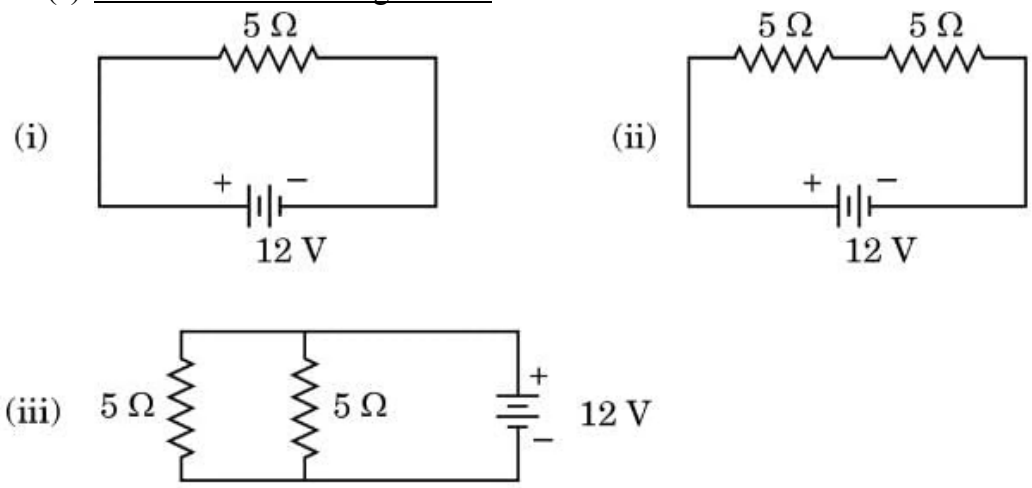
Reason (R): A concave mirror always forms a diminished image of the object.

33 A ray of light is incident on a convex mirror as shown. Redraw the diagram and complete the path of this ray after reflection from the mirror. Mark angle of incidence and angle of reflection on it. 2



34 Attempt either option A or B. 2

(a) Consider the following circuits

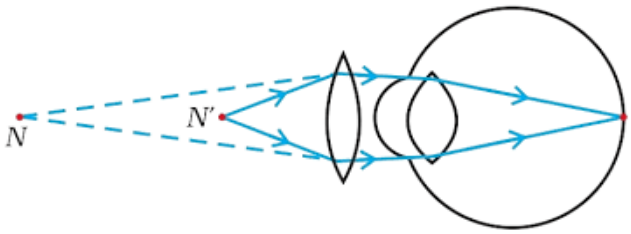


In which circuit will the power dissipated in the circuit be (I) minimum (II) maximum ? Justify your answer.

OR

(b) Two lamps, rated 100 W; 220 V and 60 W; 220 V, are connected in parallel to an electric main supply of 220 V. Find the current drawn by the two lamps from the supply.

35 3



The above image shows a corrective measure for a particular defect of vision.

(i) Identify the defect of vision and state what kind of lens is used to correct this deficiency.

(ii) Draw and label a ray diagram that shows the defect of vision in the above case before correction.

36 State the factors on which resistance of a conductor depends. A wire of length 3m and cross-sectional area 1 mm^2 has resistance 60 Ω. Calculate the resistivity of the material of wire. 3

37 What is a solenoid? Draw a diagram to show the magnetic field of a current-carrying solenoid. State two ways in which the strength of the field can be increased. 3

38 Ravi wanted to fix the rear-view mirror of his scooter. He knows that the rear-view mirror is an essential safety device in the vehicle and allows him to see objects at the backside of his vehicle. 4

He bought two mirrors M1, and M2, out of which M1, is curved inwards and M2 is curved outwards.

i. Based on the given situation, which mirror should Ravi need to fix as his rear-view mirror and why? (1)

ii. What is the formula for magnification obtained with a mirror? (1)

iii. Ravi did some preliminary experiment with mirror M1 and found that magnification of the real image of an object placed at 10 cm in front of it is 3, at what distance is the image located? (2)

OR

iii. An object is placed 60 cm in front of M2. The image formed by the mirror is located 30 cm behind the mirror. What is the object's magnification? (2)

39 Attempt either option A or B. 5

(a) (i) The potential difference across the two ends of a circuit component is decreased to one-third of its initial value, while its resistance remains constant. What change will be observed in the current flowing through it? Name and state the law which helps us to answer this question.

(ii) Draw a schematic diagram of a circuit consisting of a battery of four 1.5 V cells, a 5 Ω resistor, a 10 Ω resistor and a 15 Ω resistor, and a plug key, all connected in series. Now find (a) the electric current passing through the circuit, and (b) the potential difference across the 10 Ω resistor when the plug key is closed.

OR

(b) (i) When is the potential difference between two points said to be 1 volt?

(ii) A copper wire has a diameter of 0.2 mm and resistivity of 1.6×10^{-8} Ω m. What will be the length of this wire to make its resistance 14 Ω? How much does the resistance change if the diameter of the wire is doubled?

**********ALL THE BEST**********