

— SCHOOL SECTION —

STD : X CBSE

PRE EXAM – I

TIME : 3:00 Hrs

SUB : SCIENCE (086)

DATE : 8th December, 2025

MM : 80

General Instructions:

1. This question paper consists of 39 questions in 3 sections. Section A is Biology, Section B is Chemistry and Section C is Physics.
2. 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

| | Section A | |
|---|---|-----|
| 1 | <p>Which of the following equations is the summary of photosynthesis?</p> <p>a) $6\text{CO}_2 + 12\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 + 6\text{H}_2\text{O}$</p> <p>b) $6\text{CO}_2 + 12\text{H}_2\text{O} + \text{Chlorophyll} + \text{Sunlight} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{CO}_2 + 6\text{H}_2\text{O}$</p> <p>c) $6\text{CO}_2 + 12\text{H}_2\text{O} + \text{Chlorophyll} + \text{Sunlight} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 + 6\text{H}_2\text{O}$</p> <p>d) $6\text{CO}_2 + \text{H}_2\text{O} + \text{Sunlight} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2 + 6\text{H}_2\text{O}$</p> | [1] |
| 2 | <p>A trait in an organism is influenced by</p> <p>a) Neither maternal nor paternal DNA.</p> <p>b) Both maternal & Paternal DNA</p> <p>c) Paternal DNA only</p> <p>d) Maternal DNA only</p> | [1] |
| 3 | <p>Which of the following is the function(s) of the ecosystem?</p> <p>1. Energy flow</p> <p>2. Nutrients flow</p> <p>3. Gaseous flow</p> <p>a) A and B</p> | [1] |

| | <p>b) B and C</p> <p>c) All of these</p> <p>d) A and C</p> | | | | | | | | | | | |
|---|--|----------|----------|--------------------------------------|------------------|---|------------------|--|----------------|---|------------------|--|
| 4 | Match the following with correct response. | [1] | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th>Column A</th> <th>Column B</th> </tr> </thead> <tbody> <tr> <td>(i) The response of a plant to light</td> <td>(a) Phototropism</td> </tr> <tr> <td>(ii) The response of a plant to gravity</td> <td>(b) Hydrotropism</td> </tr> <tr> <td>(iii) The response of a plant to water</td> <td>(c) Geotropism</td> </tr> <tr> <td>(iv) The response of a plant to chemicals</td> <td>(d) Chemotropism</td> </tr> </tbody> </table> <p>a) (i) - (a), (ii) - (c), (iii) - (b), (iv) - (d)</p> <p>b) (i) - (d), (ii) - (a), (iii) - (c), (iv) - (b)</p> <p>c) (i) - (b), (ii) - (d), (iii) - (a), (iv) - (c)</p> <p>d) (i) - (c), (ii) - (b), (iii) - (d), (iv) - (a)</p> | Column A | Column B | (i) The response of a plant to light | (a) Phototropism | (ii) The response of a plant to gravity | (b) Hydrotropism | (iii) The response of a plant to water | (c) Geotropism | (iv) The response of a plant to chemicals | (d) Chemotropism | |
| Column A | Column B | | | | | | | | | | | |
| (i) The response of a plant to light | (a) Phototropism | | | | | | | | | | | |
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| (iii) The response of a plant to water | (c) Geotropism | | | | | | | | | | | |
| (iv) The response of a plant to chemicals | (d) Chemotropism | | | | | | | | | | | |
| 5 | How much of the net primary productivity of a terrestrial ecosystem is eaten and digested by herbivores? | [1] | | | | | | | | | | |
| | <p>a) 0.1%</p> <p>b) 100%</p> <p>c) 10%</p> <p>d) 1%</p> | | | | | | | | | | | |
| 6 | Select the correct statement | [1] | | | | | | | | | | |
| | <p>a) Heterotrophs synthesise their own food</p> <p>b) Heterotrophs are capable of converting carbon dioxide and water into carbohydrates</p> <p>c) Heterotrophs utilise solar energy for photosynthesis</p> <p>d) Heterotrophs do not synthesise their own food</p> | | | | | | | | | | | |
| 7 | Observe the given figures A and B. When chhui - mui (sensitive) plant is touched, its leaves fold. This is due to: | [1] | | | | | | | | | | |
| |   <p>Figure A</p> <p>Figure B</p> <p>a) Hormonal effect</p> | | | | | | | | | | | |

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| | b) Electromagnetic effect c) Thermal effect d) Change in amount of water in cells | |
| 8 | Assertion (A): Plasmodium reproduces by multiple fission. Reason (R): Multiple fission is a type of asexual reproduction. a) Both A and R are true and R is the correct explanation of A. b) Both A and R are true but R is not the correct explanation of A. c) A is true but R is false. d) A is false but R is true. | [1] |
| 9 | Assertion (A): Decomposers act as cleaning agents of the environment. Reason (R) : The decomposers recycle waste material in the hydrosphere. a) Both A and R are true and R is the correct explanation of A. b) Both A and R are true but R is not the correct explanation of A. c) A is true but R is false. d) A is false but R is true. | [1] |
| 10 | Distinguish between a gamete and zygote. Explain their roles in sexual reproduction. | [2] |
| 11 | 1. What is an ecosystem? 2. List any two natural ecosystems. 3. We do not clean ponds or lakes, but an aquarium needs to be cleaned regularly. Why? OR The improvement in our lifestyle has led to the generation of large amount of waste material. List two reasons to justify this statement. | [2] |
| 12 | Why does the flow of signals in a synapse from axonal end of one neuron to dendritic end of another neuron take place but not in the reverse direction? Explain. | [2] |
| 13 | A man with type A blood has a wife with type B. They have a child with type O blood. Give the genotype of all the three. What other blood groups can be expected in the future offspring of this couple? | [3] |
| 14 | 1. Enlist any two nitrogenous waste products removed from the blood of human kidney. | [3] |

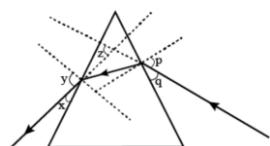
| | | |
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| | <p>2. Name the capillary cluster formed by the branch of renal artery in the Bowman's capsule.</p> <p>3. Depict in the form of a flow chart the path of the urine formed in each kidney until it is finally passed out through the urethra.</p> | |
| 15 | <p>Read the following text carefully and answer the questions that follow:</p> <p>In some families, either rural or urban, females are tortured for giving birth to a female child. They do not seem to understand the scientific reason behind the birth of a boy or a girl. In fact the mother is not responsible for the sex of the child and it has been genetically proved that the sex of a newborn is determined by what the child inherits from the father.</p> <p>1. State the basis on which the sex of a newborn baby is determined in humans. (1)</p> <p>2. Why is the pair of sex chromosomes called a mismatched pair in males?(1)</p> <p>3. How is the original number of chromosomes present in the parents restored in the progeny?(2)</p> <p>OR</p> <p>Explain by giving two examples of the organisms in which the sex is not genetically determined.(2)</p> | [4] |
| 16 | <p>Name the following:</p> <p>1. The body part in which the testes are present in a human male.</p> <p>2. The part from where the sperms are released out of the body.</p> <p>3. The part of the female reproductive system containing a mature egg.</p> <p>4. The accessory fluid in human males, whose secretion activates the sperms.</p> <p>5. The period of adolescence when the reproductive tissues begin to mature.</p> <p>OR</p> <p>What constitutes the central and peripheral nervous systems? How are the components of central nervous system protected? Which signals will get disrupted in case of a spinal cord injury?</p> | [5] |

| | Section B | | | | | | | | | |
|---|---|---|-----------|--------------------------------------|--------------|-------------------------|----------------|---------------------------|-----------------------|-----|
| 17 | <p>Sodium hydrogencarbonate when added to acetic acid evolves a gas. Which of the following statements are true about the gas evolved?</p> <ol style="list-style-type: none"> 1. It turns lime water milky 2. It extinguishes a burning splinter 3. It dissolves in a solution of sodium hydroxide 4. It has a pungent odour <ol style="list-style-type: none"> a) (i) and (iv) b) (ii), (iii) and (iv) c) (i) and (ii) d) (i), (ii) and (iii) | [1] | | | | | | | | |
| 18 | <p>Which of the given statement is correct or wrong:</p> <p>Statement A: Ethane decolorizes bromine water whereas ethyne does not.</p> <p>Statement B: Mixture of water and alcohol is used in radiators of vehicles in cold countries.</p> <ol style="list-style-type: none"> a) Both - Statement A and Statement B - are false. b) Statement A is true; Statement B is false. c) Statement B is true; Statement A is false. d) Both - Statement A and Statement B - are true. | [1] | | | | | | | | |
| 19 | <p>Before keeping any eatables in the jar, Riya always keeps anhydrous CaCl_2 in the bottle to:</p> <ol style="list-style-type: none"> a) To absorb moisture b) Kill germs c) To clean the bottle d) All of these | [1] | | | | | | | | |
| 20 | <p>Match the following with the correct response:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">(i) The bond which holds cations and anions</td> <td style="width: 50%;">(a) Ionic</td> </tr> <tr> <td>(ii) Self linking property of carbon</td> <td>(b) Pyridine</td> </tr> <tr> <td>(iii) Denatured alcohol</td> <td>(c) Catenation</td> </tr> <tr> <td>(iv) Synthetic detergents</td> <td>(d) Non-biodegradable</td> </tr> </table> | (i) The bond which holds cations and anions | (a) Ionic | (ii) Self linking property of carbon | (b) Pyridine | (iii) Denatured alcohol | (c) Catenation | (iv) Synthetic detergents | (d) Non-biodegradable | [1] |
| (i) The bond which holds cations and anions | (a) Ionic | | | | | | | | | |
| (ii) Self linking property of carbon | (b) Pyridine | | | | | | | | | |
| (iii) Denatured alcohol | (c) Catenation | | | | | | | | | |
| (iv) Synthetic detergents | (d) Non-biodegradable | | | | | | | | | |

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| | <p>a) (i) - (a), (ii) - (c), (iii) - (b), (iv) - (d) b) (i) - (d), (ii) - (a), (iii) - (c), (iv) - (b) c) (i) - (b), (ii) - (d), (iii) - (a), (iv) - (c) d) (i) - (c), (ii) - (b), (iii) - (d), (iv) - (a)</p> | |
| 21 | <p>The slag obtained during the extraction of copper pyrites is composed mainly of:</p>  <p>a) CuSiO_3 b) SiO_2 c) Cu_2S d) FeSiO_3</p> | [1] |
| 22 | <p>You want to test for hardness of water but hard water is not available in the laboratory. Which of the following compounds may be dissolved in pure water to make it hard?</p> <ol style="list-style-type: none"> 1. Hydrogen Carbonate of Sodium 2. Sulphate of Magnesium 3. Chloride of Calcium 4. Carbonate of Sodium <p>a) (i) and (ii) b) (ii) and (iii) c) (i) and (iv) d) (iii) and (iv)</p> | [1] |
| 23 | <p>A solution turns the colour of turmeric to reddish brown. If the same solution is poured on universal indicator, its colour would change to -</p> <p>a) blue b) red c) violet d) green</p> | [1] |
| 24 | <p>Assertion (A): Sodium carbonate pentahydrate is also known as washing soda.</p> | [1] |

| | <p>Reason (R): Chief raw materials for the manufacture of washing soda are NH_3, NaCl and CaCO_3.</p> <p>a) Both A and R are true and R is the correct explanation of A.</p> <p>b) Both A and R are true but R is not the correct explanation of A.</p> <p>c) A is true but R is false.</p> <p>d) A is false but R is true.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------|--|---------------------|-------------------|---------------------|---------------|----------------|---|-------------|--------------|---|---|---|--------------|---|-------------|---|---|-------------|-------------|-------------|--------------|---|-------------|-------------|-------------|-------------|-----|
| 25 | <p>Kedar heated a few crystals of copper sulphate in a dry boiling tube.</p> <ol style="list-style-type: none"> What will be the color of the copper sulphate after heating? Will you notice water droplets in the boiling tube? Where have these come from? | [2] | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | <p>Write the balanced chemical equation for the following reaction:</p> <ol style="list-style-type: none"> Phosphorus burns in presence of chlorine to form phosphorus penta chloride. Burning of natural gas. The process of respiration <p>OR</p> <p>A magnesium ribbon is burnt in oxygen to give a white compound X accompanied by emission of light. If the burning ribbon is now placed in an atmosphere of nitrogen, it continues to burn and forms a compound Y.</p> <ol style="list-style-type: none"> Write the chemical formulae of X and Y. Write the balanced chemical equation when X is dissolved in water. | [3] | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | <p>Samples of four metals A, B, C and D were taken and added to the following solution one by one. The results obtained have been tabulated as follows:</p> <p>Use the table above to answer the following questions about metals A, B, C and D.</p> <ol style="list-style-type: none"> Which is the most reactive metal? <table border="1"> <thead> <tr> <th>Metal</th> <th>Iron(II) sulphate</th> <th>Copper(II) sulphate</th> <th>Zinc sulphate</th> <th>Silver nitrate</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>No reaction</td> <td>Displacement</td> <td>—</td> <td>—</td> </tr> <tr> <td>B</td> <td>Displacement</td> <td>—</td> <td>No reaction</td> <td>—</td> </tr> <tr> <td>C</td> <td>No reaction</td> <td>No reaction</td> <td>No reaction</td> <td>Displacement</td> </tr> <tr> <td>D</td> <td>No reaction</td> <td>No reaction</td> <td>No reaction</td> <td>No reaction</td> </tr> </tbody> </table> | Metal | Iron(II) sulphate | Copper(II) sulphate | Zinc sulphate | Silver nitrate | A | No reaction | Displacement | — | — | B | Displacement | — | No reaction | — | C | No reaction | No reaction | No reaction | Displacement | D | No reaction | No reaction | No reaction | No reaction | [3] |
| Metal | Iron(II) sulphate | Copper(II) sulphate | Zinc sulphate | Silver nitrate | | | | | | | | | | | | | | | | | | | | | | | |
| A | No reaction | Displacement | — | — | | | | | | | | | | | | | | | | | | | | | | | |
| B | Displacement | — | No reaction | — | | | | | | | | | | | | | | | | | | | | | | | |
| C | No reaction | No reaction | No reaction | Displacement | | | | | | | | | | | | | | | | | | | | | | | |
| D | No reaction | No reaction | No reaction | No reaction | | | | | | | | | | | | | | | | | | | | | | | |

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| | <p>2. What would you observe if B is added to a solution of copper(II) sulphate?</p> <p>3. Arrange the metals A, B, C and D in the order of decreasing reactivity.</p> | |
| 28 | <p>Read the following text carefully and answer the questions that follow:</p> <p>In a balanced chemical reaction, equal number of atoms are present on both sides of reaction. A balanced chemical reaction is based on law of conservation of mass which means that total mass of reactants and products participating in a reaction must be equal. For example, a balanced chemical equation of burning of magnesium in oxygen to form magnesium oxide is written as:</p> $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$ <p>The mass of reactants ($2 \times 24 + 32 = 80$) is equal to the mass of products [$2 \times (24 + 16) = 80$].</p> <ol style="list-style-type: none"> 1. In a reaction, 35 g of reactant, PQ breaks down into 20 g of product, P and an unknown amount of product, Q. Find the amount of product Q. (1) 2. The solid mercury (II) oxide is heated, and liquid mercury and oxygen gas are produced. Mention balanced chemical reaction.(1) 3. Which laws are satisfied by a balanced chemical equation?(2) <p>OR</p> <p>In the given chemical reaction,(2)</p> $2\text{C}_6\text{H}_{6(l)} + 15\text{O}_{2(g)} \rightarrow m\text{CO}_{2(g)} + n\text{H}_2\text{O}_{(l)}$ <p>Find the values of m and n respectively.</p> | [4] |
| 29 | <p>Describe the addition reaction of carbon compounds with its application. State the function of catalyst in this reaction. How this reaction is different from a substitution reaction? Explain with an example.</p> <p>OR</p> <p>What are soaps? Write the structure of a soap molecule. Explain the cleansing action of a soap. Why are soaps not considered suitable for washing clothes in a region where water is hard? How is this problem overcome?</p> | [5] |
| | Section C | |
| 30 | <p>Which of the following statement is/are true?</p> <ol style="list-style-type: none"> 1. The speed of all colours is the same in air or vacuum. | [1] |

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| | <p>2. The speed of all colours is different in denser media.</p> <p>3. Speed of light in air is 3×10^8 ms⁻¹.</p> <p>4. Refractive index has no unit.</p> <p>a) A and B</p> <p>b) B and D</p> <p>c) All of these</p> <p>d) A, B and C</p> | |
| 31 | <p>Study the following ray diagram</p>  <p>In this diagram, the angle of incidence, the angle of emergence and the angle of deviation respectively have been represented by:</p> <p>a) p, y, z</p> <p>b) y, p, z</p> <p>c) x, q, z</p> <p>d) p, z, y</p> | [1] |
| 32 | <p>Assertion (A): A solenoid tends to expand, when a current passes through it.</p> <p>Reason (R): Two straight parallel metallic wires carrying current in same direction attract each other.</p> <p>a) Both A and R are true and R is the correct explanation of A.</p> <p>b) Both A and R are true but R is not the correct explanation of A.</p> <p>c) A is true but R is false.</p> <p>d) A is false but R is true.</p> | [1] |
| 33 | <p>Name the factors on which brightness of image in a camera depends and how?</p> | [2] |
| 34 | <p>An electric heater of resistance 8Ω draws 15 A from the service mains 2 hours. Calculate the rate at which heat is developed in the heater.</p> <p>OR</p> <p>A potential difference of 220 V is applied across a resistance of 440Ω in an electric iron.</p> | [2] |

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| | <p>(i) Find the current.</p> <p>(ii) Heat energy produced is 30s.</p> | |
| 35 | <p>1. Imagine that you are sitting in a chamber with your back to one wall. An electron beam, moving horizontally from back wall towards the front wall, is deflected by a strong magnetic field to your right side. What is the direction of magnetic field?</p> <p>2. Two circular coils A and B placed closed to each other. If the current in the coil A is changed, will some current be induced in coil B? Give reason.</p> | [3] |
| 36 | <p>1. Study the diagram and name the parts marked as A, B, C and D.</p> <p>2. Write the function of A and C.</p> | [3] |
| 37 | <p>A plotting compass is placed inside a solenoid and the compass needle is pointing in the direction as shown.</p> <p>1. Complete the diagram by drawing arrowheads to indicate the direction of the current flow.</p> <p>2. Describe the direction of the magnetic field inside the solenoid.</p> | [3] |
| 38 | <p>Read the following text carefully and answer the questions that follow:</p> <p>Study the following electric circuit in which the resistors are arranged in three arms A, B and C:</p> <p>1. Find the equivalent resistance of arm B. (1)</p> | [4] |

| | | |
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| | <p>2. Calculate the equivalent resistance of the parallel combination of the arms B and C. (1)</p> <p>3. Determine the current that flows through the ammeter. (2)</p> <p>OR</p> <p>Determine the current that flows in the ammeter when the arm B is withdrawn from the circuit. (2)</p> | |
| 39 | <p>An object 2 cm high is placed at a distance of 16 cm from a concave mirror which produce a real image 3 cm high. (i) What is the focal length of the mirror ? (ii) Find the position of the image.</p> <p>OR</p> <p>1. Define power of a lens and write its SI unit. Name the type of lens whose power is negative.</p> <p>2. A convex lens forms a real and inverted image of finite size at a distance of 50 cm from it. Where is the object placed in front of the lens? Give all possible positions of the object stating reason in each case.</p> <p>3. Draw labelled ray diagram for any one position of the object mentioned in (b) above.</p> | [5] |

....All The Best....



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— SCHOOL SECTION —

CIDCO BRANCH

9168 444 999

1ST FLOOR, INFRONT OF BALIRAM PATIL SCHOOL

HARSUL-SAWANGI BRANCH

9168 044 999

1ST FLOOR, INFRONT OF PANAD SUPER MARKET