SET : 01

2025_26_PRE_5

EDUTECH ACADEMY
NURTURING THE FUTURE....

— SCHOOL SECTION —

STD : X CBSE | **PRE EXAM – V** | **TIME : 3:00 Hrs**

SUB : SCIENCE (086) | **DATE : 24th January, 2026** | **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	
1	The breakdown of glucose has taken the following pathway: Glucose $\xrightarrow{(a)}$ Pyruvate + Energy $\xrightarrow{(b)}$ Lactic acid + Energy The sites ' a ' and ' b ' respectively are: a) Cytoplasm and Yeast cells b) Mitochondria and Oxygen deficient muscle cells c) Cytoplasm and Oxygen rich muscle cells d) Cytoplasm and Oxygen deficient muscle cells	**[1]**
2	In an experiment to study independent inheritance of two separate traits : shape and colour of seeds, the ratio of the different combinations in F_2 progeny would be a) 1 : 3 b) 1 : 2 : 1 c) 9 : 1 : 1 : 3 d) 9 : 3 : 3 : 1	**[1]**
3	A system of inter - dependent food chains represents a) Food web	**[1]**

	b) Ecosystem c) Trophic levels d) Community	
4	Match the following with correct response. <table><tr><th>Column A</th><th>Column B</th></tr><tr><td>(i)The master gland</td><td>(a)Control cell division and cell growth</td></tr><tr><td>(ii)Cytokinin</td><td>(b)Regulates metabolism</td></tr><tr><td>(iii)Insulin</td><td>(c)Reduces blood sugar</td></tr><tr><td>(iv)Thyroxine</td><td>(d)Pituitary gland</td></tr></table> a) (i) - (d), (ii) - (a), (iii) - (c), (iv) - (b) b) (i) - (c), (ii) - (b), (iii) - (d), (iv) - (a) c) (i) - (a), (ii) - (c), (iii) - (b), (iv) - (d) d) (i) - (b), (ii) - (d), (iii) - (a), (iv) - (c)	**[1]**
5	The percentage of solar energy which is **not** converted into food energy by the leaves of green plants in a terrestrial ecosystem is about: a) 99% b) 10% c) 1% d) 90%	**[1]**
6	Which one of the following is **not** an excretory product in plants? a) Dead cells b) CO_2 c) Resins and gums d) Starch	**[1]**
7	A doctor advised a person to take an injection of insulin because : a) his pancreas was not secreting the required hormone in proper amounts. b) he was looking short in height.	**[1]**

	c) his heart was beating slowly. d) his blood pressure was low.	
8	**Assertion (A):** When a bacterium divides into two, and the resultant two bacteria divide again, the four bacteria produced would be almost similar. **Reason (R):** DNA copying involves small inaccuracies in the reproduction process. 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):** The energy which passes to the herbivores does not come back to autotrophs. **Reason (R):** The flow of energy in a food chain is unidirectional. 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	What is multiple fission? Draw a diagram to show multiple fission in Plasmodium.	**[2]**
11	How is ozone formed in the upper atmosphere? State its importance. What is responsible for its depletion? Write one harmful effect of ozone depletion. **OR** What is ozone? How is it formed at the higher level of the atmosphere? What is likely to happen if the ozone layer is continuously damaged, which is in fact happening at the moment? List any two consequences of it.	**[2]**
12	Why is the use of iodised salt advisable?	**[2]**
13	A plant having blue coloured flowers (BB) is crossed with a plant having white coloured flowers (bb) : 1. Name the term used for the trait, which is observed in F_1 generation. Give its gene combination.	**[3]**

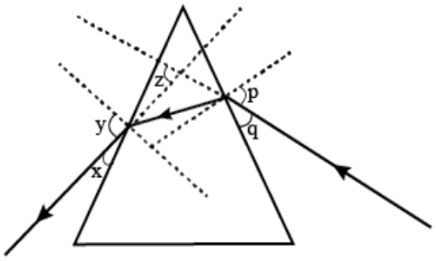
	2. If the plants obtained in F_1 generation are self - pollinated, write the percentage of (i) plants with flowers of blue colour, and (ii) plants with flowers of white colour in F_2 generation. What did the reappearance of plants with white coloured flowers in F_2 generation indicate?	
14	1. Name the organs that form the excretory system in human beings. 2. Describe in brief how urine is produced in human body.	**[3]**
15	**Read the following text carefully and answer the questions that follow:** The most obvious outcome of the reproductive process is the generation of individuals of similar design, but in sexual reproduction they may not be exactly alike. The resemblances as well as differences are marked. The rules of heredity determine the process by which traits and characteristics are reliably inherited. Many experiments have been done to study the rules of inheritance. 1. Why an offspring of human being is not a true copy of his parents in sexual reproduction? (1) 2. While performing experiments on inheritance in plants, what is the difference between F_1 and F_2 generation?(1) 3. Why do we say that variations are useful for the survival of a species over time?(2) **OR** Study Mendel's cross between two plants with a pair of contrasting characters.(2) $RRYY \times rryy$ $RoundYellow \quad WrinkledGreen$ He observed 4 types of combinations in F_2 generation. Which of these were new combinations? Why do new features which are not present in the parents, appear in F_2 generation?	**[4]**
16	1. Identify the modes of asexual reproduction in each of the following organisms: a. Hydra b. Planaria c. Amoeba	**[5]**

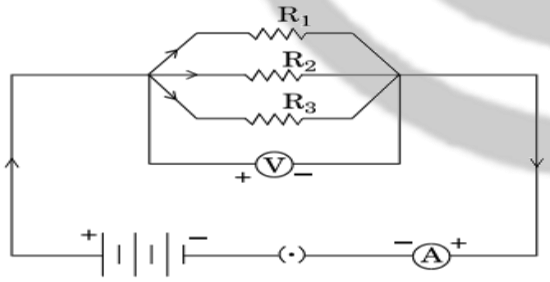
	d. Spirogyra e. Rhizopus 2. List three advantages of vegetative propagation. 3. Why can fertilisation not take place in flowers if pollination does not occur? **OR** 1. What are tropic movements? Give an example of a plant hormone which (1) inhibits growth and (2) promotes cell division. 2. Explain directional movement of a tendril in pea plant in response to touch. Name the hormone responsible for this movement.	
	Section B	
17	Which of the following statements is not correct? a) Some metals react with acids to give salt and hydrogen. b) Some non metal oxides react with water to form an acid. c) All metal oxides react with water to give salt and acid. d) All metal carbonates react with acid to give a salt, water and carbon dioxide.	**[1]**
18	Which of the given statement is correct or wrong: **Statement A:** Ethane decolorizes bromine water whereas ethyne does not. **Statement B:** Mixture of water and alcohol is used in radiators of vehicles in cold countries. a) Both - Statement A and Statement B - are false. b) Statement A is true; Statement B is false. c) Statement B is true;StatementA is false. d) Both - Statement A and Statement B - are true.	**[1]**
19	A few pieces of granulated zinc are taken in a test tube and 2 mL of sodium hydroxide solution is added to it. When the contents are warmed, the product formed is:	**[1]**

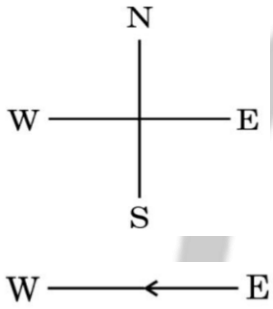
	a) $NaZnO_2$ b) Na_2ZnO c) Na_2ZnO_2 d) $NaZn(OH)_2$	
20	Match the following with the correct response: <table><tr><th>Column A</th><th>Column B</th></tr><tr><td>(i) Welding</td><td>(a) Ethyl alcohol</td></tr><tr><td>(ii) Fuel in a spirit lamp</td><td>(b) Ester</td></tr><tr><td>(iii) Lime water turns milky</td><td>(c) Carbon dioxide</td></tr><tr><td>(iv) Fruity smell</td><td>(d) Ethyne and oxygen</td></tr></table> a) (i) - (c), (ii) - (b), (iii) - (d), (iv) - (a) b) (i) - (a), (ii) - (c), (iii) - (b), (iv) - (d) c) (i) - (b), (ii) - (d), (iii) - (a), (iv) - (c) d) (i) - (d), (ii) - (a), (iii) - (c), (iv) - (b)	**[1]**
21	During smelting, an additional substance is added which combines with impurities to form a fusible productknown as:  a) Mud b) Gangue c) Flux d) Slag	**[1]**
22	The number of covalent bond(s) present in a nitrogen molecule is/are: (Atomic number of nitrogen is 7) a) 3 b) 5	**[1]**

	c) 7 d) 1	
23	The acid present in nettle sting is : a) Acetic acid b) Citric acid c) Methanoic acid d) Tartaric acid	**[1]**
24	**Assertion (A):** Strength of the acid or base decreases with dilution. **Reason (R):** Ionization of an acid or a base increases with dilution. 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]**
25	What happens when zinc granules are added to dil NaOH solution? Also write the chemical equation for the reaction.	**[2]**
26	Identify the type of reactions taking place in each of the following cases and write the balanced chemical equation for the reactions. 1. Zinc reacts with silver nitrate to produce zinc nitrate and silver. 2. Potassium iodide reacts with lead nitrate to produce potassium nitrate and lead iodide. **OR** What happens when dilute hydrochloric acid is added to iron filings?	**[3]**
27	A lady bought a new iron container and kept blue vitriol solution into it. On the next day, she found that the blue colour of the solution fades. She went to the shopkeeper and complained. But the shopkeeper argued that the container is of good quality and he refused to return her money. An aware person Ankit came there and asked the matter. He told the lady that the container is of good quality and you have kept the wrong substance in it, so fault is all yours. On the basis of given passage, answer the following questions.	**[3]**

	1. What qualities are exhibited by Ankit? 2. Why the container becomes porous when blue vitriol solution is kept into it?	
28	**Read the following text carefully and answer the questions that follow:** When the fats and oil present in the food material get oxidized by the oxygen (of air), their oxidation products have unpleasant smells and tastes. Due to this taste of food material containing fats and oil change and become very unpleasant. The condition produced by aerial oxidation of fats and oils in food marked by unpleasant smell and taste is called rancidity. Rancidity spoils the food material prepared in the fats and oils which have been kept for a considerable time and makes them unfit for eating. The development of rancidity in food can be prevented in the following ways - I. Rancidity can be prevented by adding an antioxidant to foods containing fats and oils. II. Rancidity can be prevented by packaging fat and oil - containing food in Nitrogen gas. III. Rancidity can be prevented by keeping food in a refrigerator. 1. What do you understand by oxidation? (1) 2. How does the food become rancid? (1) 3. How can we prevent the rancidity of food? (2) **OR** Which type of food material gets spoiled by the phenomenon of rancidity? (2)	**[4]**
29	1. Carry out following conversions: a. Ethanol to ethene b. Ethanol to Ethanoic acid 2. Differentiate between addition reaction and substitution reaction. Give one example of each.	**[5]**

	OR 1. Why does carbon show catenation to maximum extent? List two reasons. 2. Draw electron dot structures of (i) ethane, and (ii) ethene. 3. An organic compound **A** (molecular formula $C_2H_4O_2$) is used for preserving pickles and gives hydrogen gas with sodium metal. a. Identify **A** , and b. Write its structural formulae.	
	Section C	
30	Which of the following statement is incorrect? 1. A ray of light passing from an optically rarer medium to an optically denser medium bends away from the normal. 2. A ray of light passing from an optically denser medium to an optically rarer medium bends away from the normal. 3. A ray of light passing from an optically rarer medium to an optically denser mediumbends toward the normal. 4. A ray light passing from an optically denser medium to an optically rarer mediumbends towards the normal. a) A, B and D b) B and C c) A and C d) A and D	**[1]**
31	Study the following ray diagram  In this diagram, the angle of incidence, the angle of emergence and the angle of deviation respectively have been represented by:	**[1]**

	a) p, y, z b) y, p, z c) x, q, z d) p, z, y	
32	**Assertion (A):** There is no change in the energy of acharged particle moving in a magnetic field although a magnetic force is acting on it. **Reason (R):** Work done by the centripetal force is always zero. 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]**
33	How are we able to see distant and nearby objects clearly? Which part of eye helps in changing curvature of lens? Why no image is formed at blind spot?	**[2]**
34	In the circuit given below, the resistors R_1 , R_2 and R_3 have the values 10 Ω , 20 Ω and 30 Ω respectively, which have been connected to a battery of 12 V. Calculate 1. the current through each resistor, 2. the total circuit resistance, and 3. the total current in the circuit.  **OR** 1. Write the mathematical expression for Joule's law of heating. 2. Compute the heat generated while transferring 96000 coulombof charge in two hours through a potential difference of 40 V.	**[2]**

35	1. Draw the pattern of magnetic field lines produced by a current carrying circular loop showing the direction of current in the loop and the direction of the magnetic field lines. 2. State the rule which can be applied to know the direction of magnetic field lines in the above case.	**[3]**
36	What are the common defects of vision that can be corrected by the use of suitable eyeglasses or spectacles?	**[3]**
37	1. State the Right - hand thumb rule. 2. A steady current flows through a horizontal power line from east to west direction as shown in the figure. Apply right - hand thumb rule to determine the direction of magnetic field (i) at a point directly below it, and (ii) at a point directly above it. 	**[3]**
38	**Read the following text carefully and answer the questions that follow:** When electric current flows in a purely resistive circuit electrical energy gets fully converted into heat energy. The amount of heat produced (H) in the circuit is found to be directly proportional to (i) the square of current I^2 (ii) the resistance (R) of the conductor and (iii) the time (t) for which current flows. In other words $H=I^2 Rt$. Electrical devices such an electric fuse, electric heater, electric iron etc. are all based on this effect called heating effect of electric current. 1. List two properties of heating elements. **(1)** 2. List two properties of electric fuse. **(1)** 3. Name the principle on which an electric fuse works. Explain how a fuse wire is capable of saving electrical appliances from getting damaged due to accidently produced high currents. **(2)** **OR** The power of an electric heater is 1100 W . If the potential difference between the two terminals of the heater is 220 V , find the current	**[4]**

	flowing in the circuit. What will happen to an electric fuse of rating 5 A connected in this circuit? **(2)**	
39	1. Define principal axis of a lens. Draw a ray diagram to show what happens when a ray of light parallel to the principal axis of a concave lens passes through it. 2. The focal length of a concave lens is 20 cm. At what distance from the lens should a 5 cm tall object be placed so that its image is formed at a distance of 15 cm from the lens? Also calculate the size of the image formed. **OR** 1. A person suffering from myopia (near - sightedness) was advised to wear the corrective lens of power - 2.5 D. A spherical lens of the same focal length was taken in the laboratory. At what distance should a student place an object from this lens so that it forms an image at a distance of 10 cm from the lens? 2. Draw a ray diagram to show the position and nature of the image formed in the above case.	**[5]**

....All The Best....