Doon Public School

A New Generation Sr. Sec. School | Affiliated to CBSE

Sector 21, Panchkula

Pre - Board Examination

Session: 2025-26

Class: X	***Subject: Science (086)***
Time Allowed: 3 Hours	***Max. Marks: 80***
Date: 12-12-2025	

General Instructions:

- *This question paper consists of 39 questions in 3 sections. Section A is Biology, Section B is Chemistry and Section C is Physics.*
- *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.	An organism which breaks down the food material outside the body and then absorbs it is A. a plant parasite, Cuscuta B. an animal parasite, Tapeworm C. a bacteria, Rhizobium D. a fungi, Rhizopus	**1**
2.	Energy in case of higher plants and animals is obtained by A. Breathing B. Tissue respiration C. Organ respiration D. Digestion of food	**1**
3.	The part in which gustatory receptors are present in our body is: A. inner ear B. skin C. tongue D. inner lining of nose	**1**
4.	Sapna suffers from a condition due to which her average blood sugar level is 174mg/dL. The average blood sugar level in a healthy adult is <140mg/dL. Which of the following could be the cause of Sapna's condition? A. Insufficient production of thyroxine in her body B. Insufficient production of insulin in her body C. Excess production of thyroxine in her body D, Excess production of insulin in her body	**1**
5.	If a tall pea plant bearing red flowers (TTRr) is crossed with another pea plant that is short and has white flowers (ttrr), what percentage of gametes will have both the alleles for short and white flowers? A. 0% B. 25%	**1**

	C. 50% D. 75%	
6.	The action of which among the following is crucial to the formation of ozone? A. Humans B. Sunlight C. Carbon dioxide D. Chlorofluorocarbon	1
7.	Excessive exposure of humans to UV-rays results in (i) damage to immune system (ii) damage to lungs (iii) skin cancer (iv) peptic ulcers A. (i) and (ii) B. (ii) and (iii) C. (i) and (iii) D. (iii) and (iv)	1
	The following two questions consist 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):** Vulture will always have the least amount of pesticides in a food chain. **Reason (R):** Vulture occupies the last trophic level and it gets only 10% of energy of the previous trophic level.	1
9.	**Assertion (A):** Variation always provide a survival advantage to an organism. **Reason (R):** Variation can be caused due to incorrect DNA copying.	1
10.	"Plants use a variety of techniques to get rid of waste material." Justify this statement giving any four ways.	2
11.	**Students to attempt either option (A) or (B).** A. Name the type of blood (oxygenated/ deoxygenated) transported by each of the following mentioning the path, i.e., from one organ (which place) to another (which place). (i) Vena Cava (ii) Pulmonary artery **OR** B. What will happen if : (i) Xylem tissue in a plant is removed. (ii) We are injured and start bleeding.	2

12.	If a harmful chemical enters in a food chain comprising peacock, plants, rats and snakes, which of these organisms is likely to have the highest concentration of the chemical in its body. Justify your answer.	2
13.	(i) State two limitations of electrical impulses in multicellular organisms. (ii) With the help of a flow chart show the path of a reflex action such as sneezing.	3
14.	Mendel crossed a round and yellow seeded pea plant with a wrinkled and green seeded pea plant. What did the plants of F1 generation look like in terms of shape and colour of seed? A total of 144 seeds were produced which developed into saplings. Show the ratio in which these traits are independently inherited in these144 sapling.	3
15.	Human digestive system is a tube running from mouth to anus. Its main function is to breakdown complex food molecules present in the food which cannot be absorbed as such into smaller molecules. The molecules are absorbed across the walls of the tube and the absorbed food reaches each and every cell of the body where it is utilised for obtaining energy. A. Name the movements that occur all along the gut in human digestive system. How do they help in digestion? B. Although 'Pepsin' and 'Trypsin' are both protein digesting enzyme yet they differ from each other. How? **Attempt either subpart (C) or (D)** C. Give the name of enzyme present in the fluid in our mouth cavity. State the gland which produces it What happen to the digestion process if this gland stops secreting enzyme? **OR** D. What will happen if : (i) Mucus is not secreted by the gastric glands. (ii) Villi are absent in the small intestine.	4
16.	**Attempt either option (A) or (B).** A. (i) Water in pond appears dark green and contains filamentous structures. Name these structures and the method by which they reproduce. (ii) Name the process by which Amoeba and Leishmania reproduce. Write the major difference in the way they divide to produce new individuals. (iii) Give two reasons why some plants are grown by the method of vegetative propagation. **OR** B. (i) Name the type of germ cell which is motile and the one which stores food.	5

between wall and point just below balloon is x

	(ii) Where are testes located in human males and why? State two functions of testes. (iii) In human female, one of the ovaries release an egg every month. State the changes that take place of the egg is fertilised, and if the egg is not fertilised.	
	SECTION-B	
17.	Study the following chemical reaction and select the correct statement. $H_2S(g) + Cl_2(g) \xrightarrow{Heat} S(s) + 2HCl(g)$ A. Cl_2 gets reduced, hence acts as the reducing agent B. H_2S gets oxidised, hence acts as the oxidising agent C. Cl_2 gets reduced, hence acts as the oxidising agent D. H_2S gets reduced, hence acts as the reducing agent	1
18.	Which of the following is necessary condition for all chemical reactions? A. The reactants should be in the same state B. Energy should be supplied to the reactants C. The reactants should be at the same temperature D. There should be physical contact between the reactants	1
19.	An aqueous solution 'A' turns phenolphthalein solution pink. When another aqueous solution 'B' is added to the pink solution, the pink solution disappears. Now when a few drops of solution 'A' are added to this reaction, the mixture appears pink again. The respective change, the nature of the solution are from A. acidic → basic → basic B. acidic → basic → acidic C. basic → acidic → acidic D. basic → acidic → basic	1
20.	The water of crystallisation is present in: (i) Bleaching Powder (ii) Washing soda (iii) Paster of Paris (iv) Baking soda A. (ii) and (iii) B. (ii) and (iv) C. (i) and (iii) D. (i) and (iv)	1
21.	The number of electrons in the outermost shell of the atom of a non-metal can be: A. 1,2 or3 B. 3,4 or 5 C. 5,6 or 7 D. 5,6 or 8	1
22.	The total number of electrons shared in the formation of an ethyne molecule is: A. 6 B. 3 C. 10 D. 4	1

23.	Which of the following represents the correct name of the given organic compound? A. $CH_3CH_2\ CH_2\ CH_2CHO$ – Hexanoic B. $CH_3CH_2\ CH_2OH$ – Propanal C. $CH_3CH_2\ CH_2\ CHO$ – Butanal D. CH_3CH_2 CHO-Pentanal	1
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24.	**Assertion (A):** Hydrogen gas is not evolved when a metal reacts with nitric acid. **Reason (R):** Nitric acid is a strong reducing agent and reduces the hydrogen produced in the reaction is water.	1
25.	A metal exists in nature in the form of common salt. Name the metal. Give the reason why this metal cannot be obtained from its compound by heating with carbon. Name the method by which it is obtained from its compound.	2
26.	**Attempt either option (A) or (B)** A. State the reason for the following: (i) Zinc oxide is an amphoteric oxide. (ii) Sodium metal is stored in bottle filled with kerosene oil. (iii) Aluminum is a highly reactive metal, yet it is used to make utensils for cooking **OR** B. The termite process is used for repairing crack in railway tracks on site. (i) Write the equation for reaction taking place in process, mentioning the physical states of the reactants and products. (ii) Show the formation of Calcium Oxide by transfer of electrons. (Ca= At.no. 20 and O = At.no. 8)	3
27.	Two solutions M and N give red and blue colour, respectively, with a universal indicator. (i) In which solution will the hydrogen ion concentration be more and why? (ii) If both M and N solutions are mixed and resultant mixture is tested with universal indicator, it turns green. What is the nature of the salt formed? Justify your answer. (iii) Why sour substances such as lemon juice are effective in cleaning tarnished copper vessels?	3
28.	Meena is going to host a family event in her house in a month's time. Her father decides to get the house renovated before event. He got all the	4

	whitewashed with a chemical substance and left them undisturbed for a few days. After about 2-3 days, he observed the formation of a shiny layer on all the whitewashed walls. A. What is the chemical name and formula of the substance used in white washing? B. Write a chemical equation for the formation of the shiny layer after whitewashing. **Attempt either subpart (C) or (D)** C. How can you prepare the chemical substance used in white washing? Give a balanced chemical equation for the same. **OR** D. What happens when the products obtained in (B) is heated in air? How will you classify this reaction?	
29.	**Attempt either option (A) or (B)** A. A carbon compound 'A' is widely used as a preservative in pickles and has a molecular formula $C_2H_4O_2$. This compound reacts with ethanol to form a sweet smelling compound 'B'. (i) Identify the compound 'A' and write its structure. (ii) Write chemical equation for the reaction of 'A' with ethanol to form compound 'B'. (iii) How can we get compound 'A' back from 'B'? (iv) How can 'A' be obtained from ethanol? (v) Name the gas produced when compound 'A' reacts with washing soda. **OR** B. (i) With the help of diagram, show the formation of micelles, when soap is applied on oily dirt. (ii) Take test tubes X and Y with 10 ml of hard water in each. In test tube X, add few drops of soap solution and in a test tube Y add a few drops of detergent. Shake both the tubes for the same period. In which test tube the formation of foam will be more and why? In which test tube is a curdy solid formed? Why?	5
	SECTION C	
30.	An object is placed in front of a convex mirror. Its image is formed: A. at a distance equal to the object distance in front of the mirror. B. at twice the distance of the object in front of the mirror. C. half the distance of the object in front of the mirror. D. behind the mirror and its position varies according to the object distance.	1
31.	When a beam of white light passes through a region having very fine dust particles, the colour of light mainly scattered in that region is A. red B. orange C. blue D. yellow	1

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32.	**Assertion (A):** On changing the direction of flow of current through a straight conductor, the direction of a magnetic field around the conductor is reversed. (C) **Reason (R):** The direction of magnetic field around a conductor can be given in accordance with left hand thumb rule.	1
33.	**Attempt either option (A) or (B)** A. A child is standing in front of a magic mirror. She finds the image of her head bigger, the middle portion of her body of the same size and that of the legs smaller. Explain the construction of the magic mirror using different types of mirrors. Also state the reasons in support of your answer. **OR** B. The image of an object formed by a mirror is real, inverted and is of magnification -1. If the image is at a distance of 30 cm from the mirror, where is the object placed? Give reason to justify your answer.	2
34.	A voltage source sends a current of 2A to a resistor of 40 ohms connected across it for 5minutes.Calculate the electrical energy supplied by the source.	2
35.	When do we consider a student sitting in the class to be myopic? Explain using a ray diagram how this defect of eye can be corrected?	3
36.	Draw the pattern of magnetic field lines around a bar magnet. Mark the position of North Pole, South Pole and places where the magnetic field is strongest. Why do the magnetic field lines not intersect each other?	3
37.	(i) Write the relation between resistance R and electrical resistivity of the material of a conductor in the shape of cylinder of length l and area of cross-section A. Hence derive the SI unit of electrical resistivity. (ii) The resistance of a metal wire of length 3m is 60 ohms. If area of cross section of the wire is 4×10^{-7} m^2, calculate the electrical resistivity of the wire.	3
38.	Many optical instruments consist of a number of lenses. They are combined to increase the magnification and sharpness of the image. The simple additive property of the power of lens, widely used to design lens systems of cameras, microscopes and telescopes. These lenses system can have combination of convex and concave lenses. A. What is the nature (convergent / divergent) of the combination of a convex lens of power + 4D and a concave lens of power -2D? B. Calculate the focal length of a lens of power -2.5D.	4

$P = \frac{R l}{A}$ $\quad R = \rho \frac{l}{A}$

	Attempt either option (C) or (D) C. What is the nature and position of an image formed by the convex lens of power +1D, when an object is placed at a distance of 20 cm from its optical centre? **OR** D. How is virtual image formed by a convex lens different from that formed by a concave lens? Under what conditions do a convex and a concave lens form virtual images?	
39.	**Attempt either option (A) or (B)** A. (i) Explain in brief the function of an electric fuse in domestic circuit. (ii) An electric heater of rating 3 kW ;220V is to be operated in an electric circuit of rating 5A. What is likely to happen when the heater is switched 'ON'? Justify your answer with necessary calculation. (iii) List two advantages of parallel circuits in domestic wiring? **OR** B. (i) The potential difference across the two ends of a circuit is decreased to one-third of its initial value, while its resistance remains same 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 1.5V cells, a 5ohms resistor, a 10 ohms resistor and a 15 ohms resistor and a plug key all are connected in series. Now find the electric current passing through the circuit and potential difference across the 10 ohms resistor when the plug key is closed.	**5**