EDUTECH ACADEMY
NURTURING THE FUTURE....

— SCHOOL SECTION —

CBSE CLASS 10 – SCIENCE Qs PAPER 2025_26

Series JMS/5

SET - 2

Code No. **2/4/24**

Roll No. | | | | | | | |

Candidates must write the Code on the title page of the answer-book

General Instructions:

Read the instructions very carefully and strictly follow them :

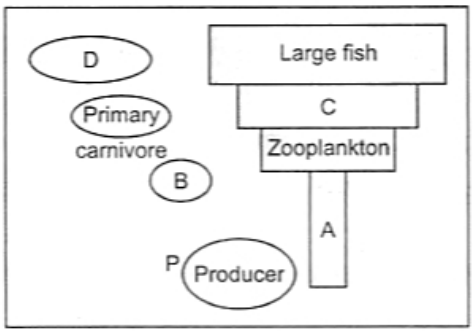
1. This question paper consists of 39 questions in 3 sections. Section A is Biology, Section B is Chemistry and Section C is Physics.
2. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.

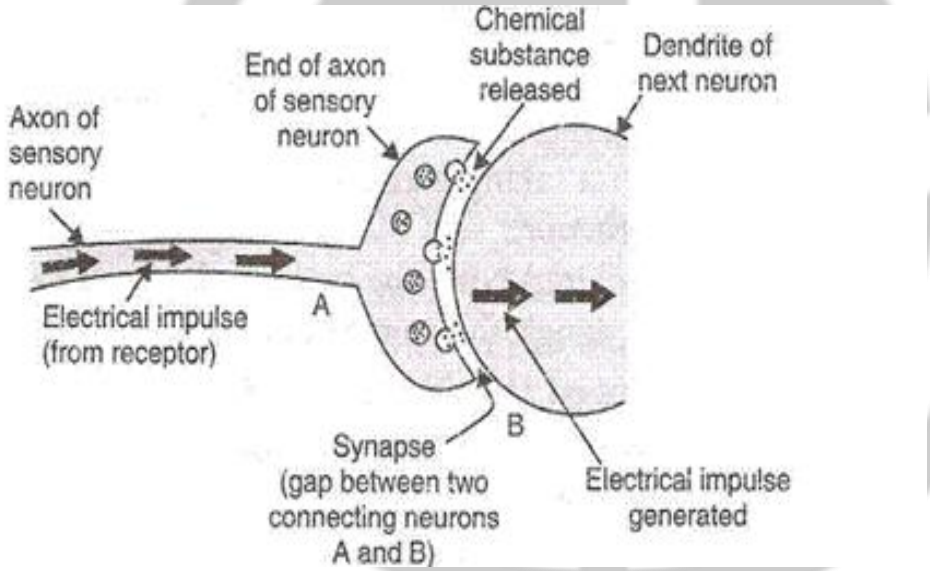
SCIENCE (086)

Time allowed : 3 hours *Maximum Marks : 80*

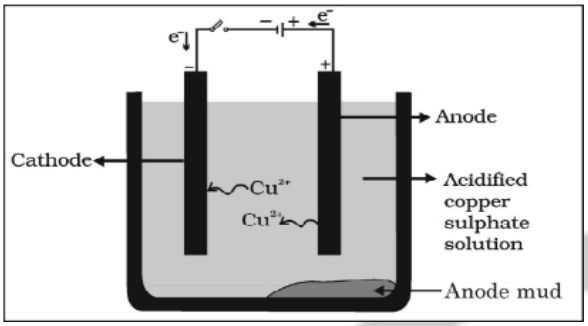
	Section A	
1	The kidneys in human beings are a part of the system for a) respiration b) nutrition c) excretion d) transportation	**[1]**
2	In a plant, smooth seeds(S) are dominant over wrinkled seeds(s) and green seeds (G) are dominant over yellow seeds (g). A plant homozygous for smooth and green seed is crossed with a plant having wrinkled and yellow seeds. The F_1 offspring are self crossed to produce F_2 generation. If a total of 160 offspring are produced, how many plants are expected to be having wrinkled and green seeds in F_2 generation, according to a typical Mendelian cross? a) 90 b) 10 c) 30 d) 20	**[1]**
3	Organisms which synthesise carbohydrates from inorganic compounds using radiant energy are called a) Carnivores b) Decomposers c) Herbivores d) Producers	**[1]**
4	Match the following with correct response. **Column A** / **Column B** (i)Central nervous system — (a)Brain (ii)Peripheral nervous system — (b)Sympathetic nervous system (iii)Autonomic nervous system — (c)Cranial and spinal nerves (iv)Reflex action — (d)Reflex arc 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]**

5	Which of the following limits the number of trophic levels in a food chain? a) Decrease in energy at each trophic level b) Food supply c) Polluted air d) Water	**[1]**
6	Which of the following is an incorrect statement? a) Movement of molecules does not take place among cells b) Organisms grow with time c) Organisms must repair and maintain their structure d) Energy is essential for life processes	**[1]**
7	Which of the following statements is not true about a **bud** in **Hydra** ? a) It forms due to repeated cell division at one specific site. b) It detaches from the parent body as soon as it is produced. c) It is an outgrowth. d) It becomes a new independent individual.	**[1]**
8	**Assertion (A):** Stock is the lower part of a plant having the roots. **Reason (R):** In grafting, the stock is placed over the scion. 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):** Accumulation of harmful chemicals is maximum in the organisms at the highest trophic level of a food chain. **Reason (R):** Harmful chemicals are sprayed on the crops to protect them from diseases and pests. 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]**

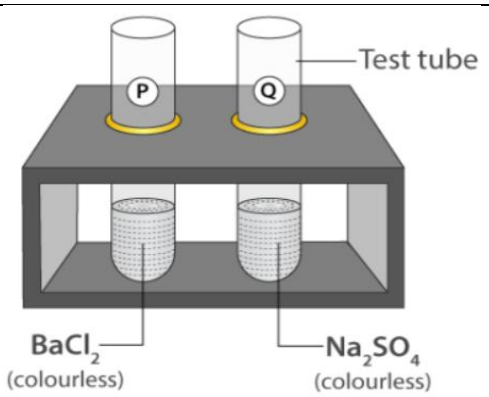
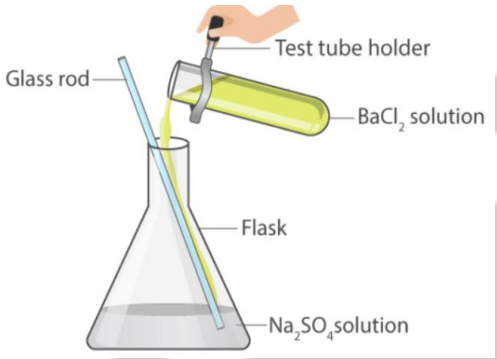
10	Give the structure of pollen grain.	**[2]**
11	Complete the below diagram by filling spaces marked as A, B, C and D:  **OR** How is ozone formed in the higher levels of the atmosphere? **Damage to the ozone layer is a cause of concern.** Justify this statement.	**[2]**
12	**An alcoholic person usually walks clumsily** - develop a better explanation for this statement.	**[2]**
13	The gene combination of purple flowered pea plants is denoted as (WW) and that of white flowered pea plants as (ww), when these two plants are crossedF_1 generation is obtained. 1. List two observations made by Mendel inF_1 generation plants. 2. Give the (i) percentage of white flowered plants and (ii) ratio of the gene combinationsWW, Ww and ww in F_2 generation. 3. Write one difference between dominant and recessive trait.	**[3]**
14	Explain how urine is produced in kidneys.	**[3]**
15	**Read the following text carefully and answer the questions that follow:** Mendel blended his knowledge of Science and mathematics to keep the count of the individuals exhibiting a particular trait in each generation. He observed a number of contrasting visible characters controlled in pea plants in a field. He conducted many experiments to arrive at the laws of inheritance. 1. What do the F1 progeny of tall plants with round seeds and short plants with wrinkled seeds look like? (1) 2. Name the recessive traits in above case. (1) 3. Mention the type of the new combinations of plants obtained in F2 progeny along with their ratio, if F1 progeny was allowed to self pollinate. (2) **OR**	**[4]**

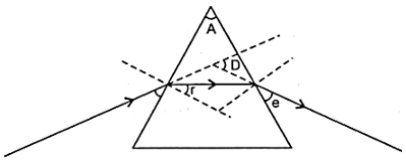
	If 1600 plants were obtained in F2 progeny, write the number of plants having traits: Tall with round seed Short with wrinkled seeds Write the conclusion of the above experiment. (2)	
16	1. Name the organ that produces sperms as well as secretes a hormone in human males. Name the hormone it secretes and write its functions. 2. Name the parts of the human female reproductive system where fertilisation occurs. 3. Explain how the developing embryo gets nourishment inside the mother's body? **OR** Given below is a well - labelled diagram showing synapse between the two neurons.  Using the given diagram, answer the following questions: 1. What is the sequence in which nerve impulse travels? 2. How synapse between two neurons acts as a one - way valve? 3. Which chemical substance is released when an electrical impulse coming from the receptor reaches the end of the axon of a sensory neuron? 4. How a neurotransmitter starts an electrical impulse in the next neuron? 5. Which part of the neuron has a synaptic knob?	**[5]**

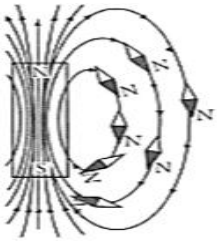
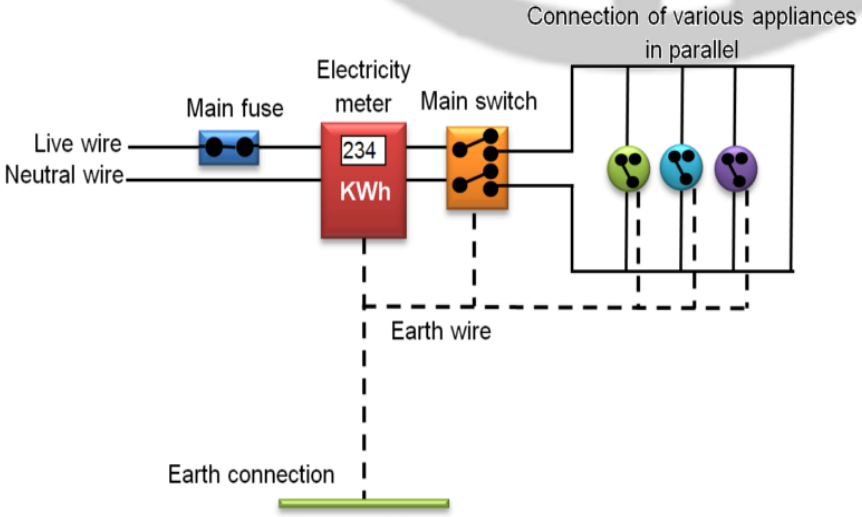
	Section B	
17	Select the incorrect statement. 1. The formula of the compound is calcium sulphate dihydrate. 2. When mixed with water and left for half an hour, this compound sets into a hard mass. 3. If heated at higher temperature, the compound becomes dehydrated and is called dead burnt plaster. 4. Both (a) and (b) a) Statement (d) is incorrect. b) Statement (a) is incorrect. c) Statement (b) is incorrect. d) Statement (c) is incorrect.	**[1]**
18	Which of the given statement is true or false: **Statement A:** Valeric acid is the common name of hexane. **Statement B:** Glycerol is added in the manufacturing of soap. a) Statement B is true and statement A is false b) Neither statement A nor statement B is false c) Both the statements A and B are false d) Statement A is true and statement B is false	**[1]**
19	Silver particles become black on prolonged exposure to air. This is due to the formation of a) Ag_2 O b) Ag_2 S c) Ag_3 N d) Ag_2 S and Ag $_3$ N	**[1]**
20	Match the following with the correct response: **Column A** / **Column B** (i) Ionic bond / (a) NH_3 (ii) Polar covalent bond / (b) C_{60} (iii) Non-polar bond / (c) N_2 (iv) Fullerene / (d) NaCl a) (i) - (c), (ii) - (b), (iii) - (d), (iv) - (a)	**[1]**

	b) (i) - (d), (ii) - (a), (iii) - (c), (iv) - (b) c) (i) - (b), (ii) - (d), (iii) - (a), (iv) - (c) d) (i) - (a), (ii) - (c), (iii) - (b), (iv) - (d)	
21	The following diagram shows the electrolytic refining of copper:  Which of the following statements is **<u>incorrect</u>** description of the process? a) The impure metal from the anode dissolves into the electrolyte. b) Insoluble impurities settle down at the bottom of the anode. c) On passing the current through the electrolyte, the pure metal from the anode dissolves into the electrolyte. d) The pure metal from the electrolyte is deposited on the cathode.	**[1]**
22	Buckminsterfullerene is an allotropic form of a) phosphorus b) carbon c) tin d) sulphur	**[1]**
23	The raw materials that are required for the manufacturing of washing soda by the Solvay process are: a) NH_3 , $CaCl_2$, $CaCO_3$ b) NaCl, NH_4 OH, CaO c) NaCl, $CaCO_3$, NH_3 d) NH_4 OH, $CaCO_3$, NaCl	**[1]**
24	**Assertion (A):** Bleaching powder reacts with dilute acids to evolve chlorine. **Reason (R):** The chlorine liberated by the action of dilute acids on bleaching powder is called available chlorine.	**[1]**

	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.	
25	1. What happens when dilute hydrochloric acid is added to sodium carbonate ? Write a balanced chemical equation of the reaction involved. 2. Which gas is liberated when dilute hydrochloric acid reacts with sodium carbonate ? How will you test for the presence of this gas?	**[2]**
26	What is a displacement reaction? Write balanced chemical equation for a displacement reaction in which iron is a reactant. Name one more element whose behaviour is similar to that of iron in such reactions. Why will this kind of behaviour not be shown by gold? **OR** A student burnsa metal **A** found in the form of ribbon.The ribbon burnswith a dazzling flame & a white powder **B** is formed which is basic in nature. Identify A & B. Write the balanced chemical equation for the reaction involved.	**[3]**
27	A cleaned aluminium foil was placed in an aqueous solution of zinc sulphate. When the aluminium foil was taken out of the zinc sulphate solution after 15 minutes, its surface was found to be coated with a silvery grey deposit. From the given observation, what can be concluded?	**[3]**
28	**Read the following text carefully and answer the questions that follow:** When a more reactive element displaces a less reactive element from its compound, it is called a displacement reaction. The reaction is of two types. Single displacement reaction and double displacement reaction. Iron being more reactive than copper displaces copper from an aqueous solution of copper sulphate. This is an example of a single displacement reaction. On adding silver nitrate solution to sodium bromide, a yellow ppt of silver bromide and solution of sodium nitrate is formed. This is an example of a double displacement reaction. 1. When dil. sulphuric acid is added to pieces of iron sulphide, hydrogen sulphide gas is produced and soluble ferrous sulphate is formed. Which chemical reaction is involved in this process? (1) 2. Mention reaction which is used for the preparation of oxygen gas in the laboratory.(1) 3. What are the products formed inthe double displacement reaction discussed below?(2)	**[4]**

	  **OR** Which elements displace aluminum from its salt?(2)	
29	1. Define the term "Functional group of a carbon compound". Write the formula of functional group present in (i) propanol and (ii) propanone. 2. Name the process of conversion of (i) ethanol to ethene and (ii) ethanol to ethanoic acid. Write the reaction equation stating the conditions required for each of the reactions to occur. **OR** Differences between soaps and synthetic detergents.	**[5]**
	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.	**[1]**

	a) A, B and D b) B and C c) A and C d) A and D	
31	In the following ray diagram the correctly marked angles are:  a) ∠ A and ∠ D b) ∠ r, ∠ A and ∠ D c) ∠ i and ∠ e d) ∠ i, ∠ e and ∠ D	**[1]**
32	**Assertion (A):** Magnetic field lines around a bar magnet never intersect each other. **Reason (R):** Magnetic field produced by a bar magnet is a quantity that has both magnitude and direction. 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	The far point of a myopic person is 80 cm in front of the eye. What is the nature and power of the lens required to correct the problem?	**[2]**
34	There are three 2 V cells connected in series. How many joules of energy does 1 C gain on passing through all the three cells? **OR** Compare the power used in the 2Ω resistor in each of the following circuits: (i) a 6 Vbattery in series with 1 Ω and 2 Ω resistors,and (ii) a 4 V battery in parallel with 12 Ω and 2 Ω resistors.	**[2]**
35	A magnetic field is described by drawing the magnetic field lines. When a small north magnetic pole is placed in the magnetic field created by a magnet, it will experience a force. And if the north pole is free, it will move under the influence	**[3]**

	of the magnetic field. The path traced by a north magnetic pole free to move under the influence of a magnetic field is called a magnetic field line.  1. Dothe magnetic field lines intersect each other? If not why? 2. A strong bar magnet is placed vertically above a horizontal wooden board. What will be the magnetic lines of force?	
36	What is a rainbow? Draw a labelled diagram to show its formation.	**[3]**
37	1. A horizontal power line carries a current from East to West direction. What is the direction of the magnetic field due to the current in the power line at a point above and below the power line? 2. a. Two circular coils X and Y are placed close to each other. If the current in coil X is changed then some current will be induced in coil Y? Give reason. b. State Fleming's right - hand rule.	**[3]**
38	**Read the following text carefully and answer the questions that follow:** In our homes, either the overhead electric poles or underground cables support the power supply flowing through the mains supply. One of the wires in this supply is covered with insulation in the colour red, and another wire colored black. At the meter board, these wires pass into an electric meter through the main fuse. The main switch, live wire, and the neutral wire are in connection to the line wires in our homes; these wires then supply electricity to separate electric circuits within the house.  	**[4]**

	1. What is the colour of the live wire? (1) 2. Where is the fuse placed in the electric supply in the above - given figure? (1) 3. What is the commercial unit of the power supply? (2) **OR** What is the role of the fuse in series with any electrical appliance in an electric circuit? (2)	
39	Find the size, nature and position of image formed when an object of size 1 is placed at a distance of 15 cm from a concave mirror of focal length 10 cm. **OR** 1. A 5 cm tall object is placed perpendicular to the principal axis of a convex lens of focal length 20 cm. The distance of the object from the lens is 30 cm. Find the position, nature and size of the image formed. 2. Draw a labelled ray diagram showing object distance, image distance and focal length in the above case.	**[5]**

ALL THE BEST