EDUTECH ACADEMY
NURTURING THE FUTURE....

— SCHOOL SECTION —

CBSE CLASS 10 – SCIENCE Qs PAPER 2025_26

Series JMS/5

SET - 3

Code No. **2/4/14**

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)

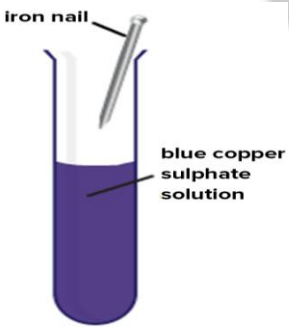
Time allowed : 3 hours *Maximum Marks : 80*

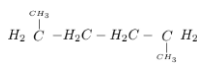
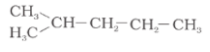
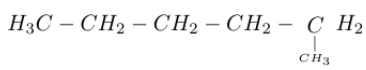
	Section A	
1	Which of the following statements are correct regarding transpiration? 1. The rate of transpiration is directly proportional to the relative humidity. 2. It regulates plant temperature. 3. Very low temperature, closes stomata and hence decreases rate of transpiration. 4. It causes ascent of sap. a) (i), (ii) and (iv) only b) (ii), (iii) and (iv) only c) (i), (ii) and (iii) only d) (i) and (iv) only	**[1]**
2	A cross made between two pea plants produces 50% tall and 50% short pea plants. The gene combination of the parental pea plants must be a) Tt and Tt b) TT and Tt c) Tt and tt d) TT and tt	**[1]**
3	Some wastes are given below: 1. Garden waste 2. Ball point pen refills 3. Empty medicine bottles made of glass 4. Peels of fruits and vegetables 5. Old cotton shirt The non - biodegradable wastes among these are: a) (i), (iii) and (iv) b) (i), (iv) and (v) c) (ii) and (iii) d) (i) and (ii)	**[1]**

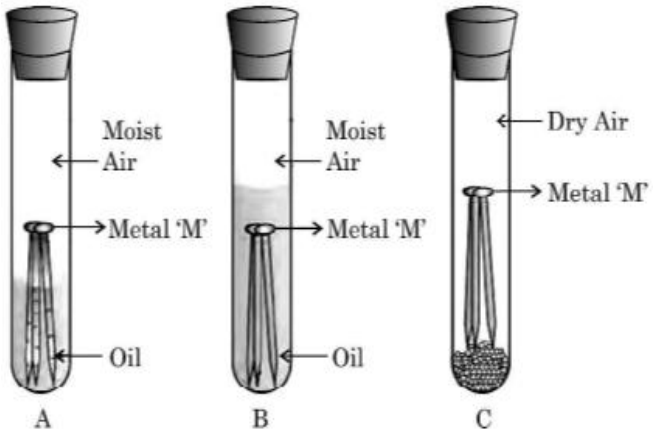
4	Match the following with correct response. **Column A** / **Column B** (i)Thyroid gland — (a)Testosterone (ii)Pancreas — (b)Thyroxin (iii)Testis — (c)Estrogen (iv)Ovaries — (d)Insulin and glucagon a) (i) - (d), (ii) - (a), (iii) - (c), (iv) - (b) b) (i) - (a), (ii) - (d), (iii) - (b), (iv) - (c) c) (i) - (c), (ii) - (b), (iii) - (d), (iv) - (a) d) (i) - (b), (ii) - (d), (iii) - (a), (iv) - (c)	**[1]**
5	Abiotic components of the ecosystem are: a) Inorganic substances b) Decomposers c) BothInorganic substances and climatic factors d) Climatic factors	**[1]**
6	Which of the following statements about the autotrophs is incorrect? a) They store carbohydrates in the form of starch b) They convert CO_2 and water into carbohydrates in the absence of sunlight c) They synthesize carbohydrates from CO_2 and water in the presence of sunlight & chlorophyll d) They constitute the first trophic level in food chains	**[1]**
7	Which one of the following is involved in reflex action? a) Exocrine glad b) Endocrine gland c) Brain d) spinal cord	**[1]**
8	**Assertion (A):** Fusion of gametes gives rise to a single cell called zygote. **Reason (R):** Zygote is a fertilised ovum. 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.	**[1]**

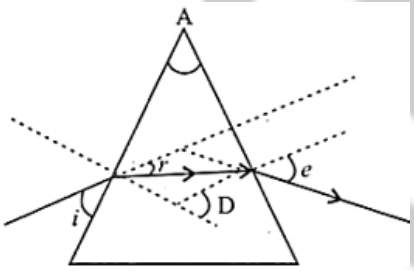
	d) A is false but R is true.	
9	**Assertion (A):** Herbivores are called first - order consumers. **Reason (R):** Tiger is a top carnivore. a) Both A and R are true and R is the correct explanation of A. b) Both A and R are true but R is not the correct explanation of A. c) A is true but R is false. d) A is false but R is true.	**[1]**
10	How does reproduction help in providing stability to populations of species?	**[2]**
11	1. State with reason the consequence of decrease in number of carnivores in an ecosystem. 2. In a food chain, state the trophic level at which the concentration of harmful chemicals is maximum. Why is it so? **OR** Your uncle has come from the village to renew the contract to supply frogs to the laboratories of the colleges of the town. While talking to you, he mentioned that cases of malaria have increased in his village. In addition population of grasshoppers has also increased who are damaging crops. 1. What could be the reasons for such problems faced by villagers? 2. What suggestions will you give to your uncle?	**[2]**
12	How does chemical coordination occur in plants?	**[2]**
13	In pea plant, round seed is dominant over the wrinkled. If a cross is carried out between these two plants, give answer to the following questions. 1. Mention the genes for the traits of parents. 2. State the trait of F_1 hybrids. 3. Write the ratio of F_2 progeny obtained from this cross. What is the name of the cross?	**[3]**
14	Can you, design any other experiment set - up for testing that CO_2 is produced during respiration?	**[3]**
15	**Read the following text carefully and answer the questions that follow:** Sex of an individual is determined by different factors in various species. Some animals rely entirely on the environmental cues, while in some other animals the individuals can change their sex during their life time indicating that sex of some species is not genetically determined. How ever, in human beings, the sex of an individual is largely determined genetically.	**[4]**

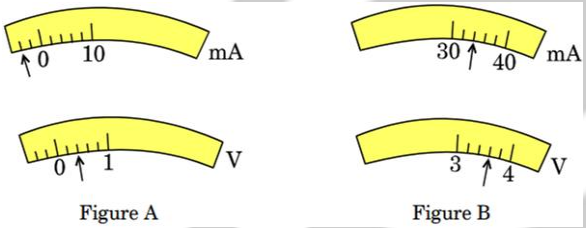
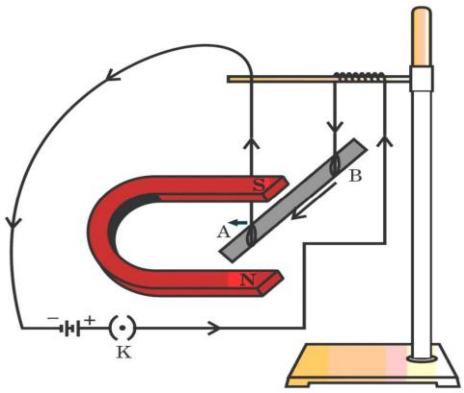
	1. What is the statistical probability of getting either a male child or a female child? (1) 2. Write the number of pair/pairs of sex chromosomes present in human beings. In which one of the parent (male/female) perfect pair I pairs of sex chromosomes are present? (1) 3. Citing two examples, justify the statement **Sex of an individual is not always determined genetically** . (2) **OR** Draw a flow chart to show that sex is determined genetically in human beings. (2)	
16	1. What happens when the egg is not fertilised? 2. How is sperm genetically different from a human egg/ova? 3. List any three contraceptive methods practised for family planning. Mention how these methods work. **OR** 1. Why is the use of iodised salt advisable? Name the disease caused due to deficiency of iodine in our diet and state its one symptom. 2. How do nerve impulses travel in the body? Explain.	**[5]**
	Section B	
17	Find the incorrect statement: 1. The pH of the stomach is approximately 4.5 2. Plants grow well in natural soil 3. The pH of acid rain is nearly 5.6 4. The pH of rainwater is nearly 7 a) Statement (B) b) Statement (D) c) Statement (C) d) Statement (A)	**[1]**
18	Which of the given statement is correct or wrong: **Statement A:** Oxyacetylene flame is used for welding purposes. **Statement B:** Ethyne reacts with HCl in the presence of $HgCl_2$ to form vinyl chloride.	**[1]**

	a) Neither statement A nor statement B is true. b) Both the statements A and B are true. c) Statement B is true;Statement A is false. d) Statement A is true; Statement B is false.	
19	Reaction between X and Y, forms compound Z. X loses electron and Y gains electron. Which of the following properties is not shown by Z? a) Has high melting point b) Has low melting point c) Occurs as solid d) Conducts electricity in molten state	**[1]**
20	Match the following with the correct response: **Column A** / **Column B** (i) Catenation — (a) Butene (ii) Alkane — (b) Carbon compounds (iii) Alkene — (c) Ethyne (iv) Alkyne — (d) Ethane a) (i) - (c), (ii) - (b), (iii) - (d), (iv) - (a) b) (i) - (b), (ii) - (d), (iii) - (a), (iv) - (c) c) (i) - (d), (ii) - (a), (iii) - (c), (iv) - (b) d) (i) - (a), (ii) - (c), (iii) - (b), (iv) - (d)	**[1]**
21	An iron nail is suspended in $CuSO_4$ solution and kept for a while. The solution:  a) Turnsgreen and a coating will beformed on the nail b) Remainblue and no coating will beformed on the nail. c) Remainsblue and a coating is found on the nail d) Turnsgreen and no coating will beformed on the nail.	**[1]**

22	Which of the following is not a straight chain hydrocarbon? a) H$_{$ C - CH_2 - CH_2 - CH_2 - CH_2 - CH_3 b)  c)  d) 	**[1]**
23	Hydronium ions are formed by the reaction between: a) Calcium chloride and water b) Sodium hydroxide and water c) Hydrogen chloride gas and water d) Ethanol and water	**[1]**
24	**Assertion (A):** To dilute concentrated sulphuric acid water is added to the acid slowly. **Reason:** A lot of heat energy will be given out in the dilution of concentrated sulphuric acid. 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	State the observations you would make on adding ammonium hydroxide to aqueous solution of (i) Ferrous sulphate (ii) Aluminium chloride?	**[2]**
26	A brown substance X on heating in air forms a substance Y. When hydrogen gas is passed over heated Y, it again changes back into X. Name the substances X and Y. **OR** A metal salt MX when exposed to light, split up to form metal M and a gas X_2 . Metal M is used in making ornaments whereas gas X_2 is used in making bleaching powder. The salt MX is itself used in black and white photography. 1. Identify metal M and gas X_2 . 2. Mention the type of chemical reaction involved when salt MX is exposed to light.	**[3]**
27	Observe the following diagram showing an experiment to determine the conditions under which a metal 'M' corrodes.	**[3]**

	 List your observations in each of the three cases A, B and C with reason, if the metal ' M ' is generally protected against corrosion by the method of galvanisation.	
28	**Read the following text carefully and answer the questions that follow:** When oxygen combines with other elements or compounds, the process is called oxidation the substances that combine with oxygen are said to have been oxidized. The reduction is exactly the opposite of oxidation. If a substance loses oxygen during a reaction, it is said to be reduced. When hydrogen burns the hydrogen combines with oxygen to form water $2H_2 + O_2 = H_2O$ The hydrogen is oxidized in this reaction, but at the same time, the oxygen is reduced. Whatever oxidation occurs reduction must also occur. 1. Which chemical process is used for obtaining a metal from its oxide? (1) 2. In the given reaction, which reactant species is oxidized? (1) 3. In the given reaction, which reactantspecies is reduced? (2) **OR** If four molecules of Hydrogen are combined with oxygen then how many molecules of water are formed? (2)	**[4]**
29	1. State the reason why carbon can neither form C^{4+} cations nor C^{4-} anions, but forms covalent bonds. Also state reasons to explain why covalent compounds a. are bad conductors of electricity. b. have low melting and boiling points. 2. Write the structural formula of benzene, C_6H_6 . **OR** 1. Differentiate between saturated and unsaturated hydrocarbons by giving one example each, with a structural formula.	**[5]**

	2. Write the method of converting an unsaturated hydrocarbon into a saturated hydrocarbon. Name the industry where this reaction is commonly used. 3. Write the name and structure of a hydrocarbon having double bond and four carbon atoms in its one molecule.	
	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	In the following diagram the correctly marked angles are:  a) ∠ A, ∠ r and ∠ D b) ∠ i, ∠ A and ∠ D c) ∠ A, ∠ i and ∠ e d) ∠ A and ∠ e	**[1]**
32	**Assertion (A):** A current - carrying conductor experiences a force in a magnetic field. **Reason (R):** The force acting on a current - carrying conductor in a magnetic field is due to interaction between magnetic field produced by the current - carrying conductor and external magnetic field in which the conductor is placed.	**[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.	
33	Student sitting at the back bench in a class is not able to see what is written on the blackboard. He, however, sees it clearly when sitting on the front seat at an approximate distance of 1.5 m from the blackboard. Draw ray diagrams to illustrate the image formation of the blackboard when he is seated at the 1. back seat 2. front seat.	**[2]**
34	The rest position of the needles in a milliammeter and voltmeter, not in use, are as shown in Figure A. When a student uses these instruments in his experiment, the readings of the needles are in the positions shown in Figure B. Determine the correct values of current and voltage the student should use in his calculations.  Figure A Figure B **OR** 1. State the relation correlating the electric current flowing in a conductor and the voltage applied across it. Also draw a graph to show this relationship. 2. Find the resistance of a conductor if the electric current flowing through it is 0.35 A when the potential difference across it is 1.4 V.	**[2]**
35	As shown in the figure a small aluminum rod AB is suspended horizontally between the poles of a strong horseshoe magnet. This rod is also connected with a battery and a key. Study the arrangement shown.  	**[3]**

	1. State Fleming's left - hand rule. 2. Apply Fleming's left - hand rule to determine : a. What is observed when a current is passed from B to A in the rod? b. What is observed when a current is passed from A to B in the rod? c. What is observed when therod*AB* is aligned parallel to the magnetic field and current is passed through it from B to A? Justify your answer in this case.	
36	A person uses lenses of power - 0.5 D in his spectacles for the correction of his vision. 1. Name the defect of vision the person is suffering from. 2. List two causes of this defect. 3. Determine the focal length of the lenses used in the spectacles.	**[3]**
37	1. A straight cylindrical conductor is suspended with its axis perpendicular to the magnetic field of a horse - shoe magnet. The conductor gets displaced towards left when a current is passed through it. What will happen to the displacement of the conductor if the a. current through it is increased? b. horse - shoe magnet is replaced by another stronger horse - shoe magnet? c. direction of current through it is reversed? 2. Name and state the rule for determining the direction of force on a current carrying conductor in a magnetic field.	**[3]**
38	**Read the following text carefully and answer the questions that follow:** The heating effect of current is obtained by transformation of electrical energy into heat energy. Just as mechanical energy used to overcome friction is covered into heat, in the same way, electrical energy is converted into heat energy when an electric current flows through a resistance wire. The heat produced in a conductor, when a current flows through it is found to depend directly on (a) strength of current (b) resistance of the conductor (c) time for which the current flows. The mathematical expression is given by $H = I^2 Rt$. The electrical fuse, electrical heater, electric iron, electric geyser etc. all are based on the heating effect of current. 1. What are the properties of heating element? (1) 2. What are the properties of electric fuse? (1)	**[4]**

	3. When the current is doubled in a heating device and time is halved, what will be the heat energy produced? (2) **OR** A fuse wire melts at 5 A. Itis desired that the fuse wire of same material melt at 10 A. Find thenew radius of the wire? (2)	
39	1. Draw a ray diagram to show the path of the reflected ray in each of the following cases: A ray of light incident on a convex mirror a. parallel to its principal axis, and b. is directed towards its principal focus 2. A 1.5 cm tall candle flame is placed perpendicular to the principal axis of a concave mirror of focal length 12 cm. If the distance of the flame from the pole of the mirror is 18 cm, use mirror formula to determine the position and size of the image formed. **OR** A concave lens of focal length 60 cm is used to form an image of an object of length 9 cm kept at a distance of 30 cm from it. Use lens formula to determine the nature, position and length of the image formed. Also draw labelled ray diagram to show the image formation in the above case.	**[5]**

ALL THE BEST