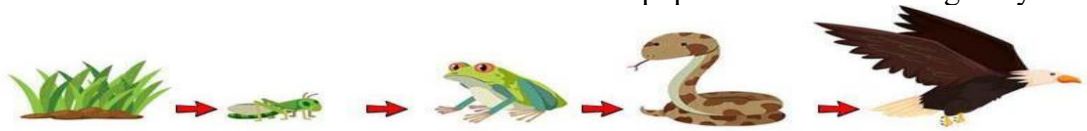
Pre-Board Examination (2025-26)
Class:10
Subject & Subject Code: Science Theory, (086)

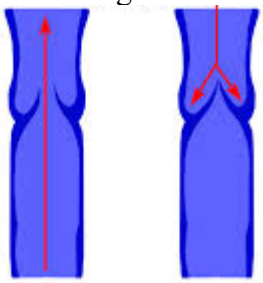
Time allowed:3 hours **Max. Marks: 80**

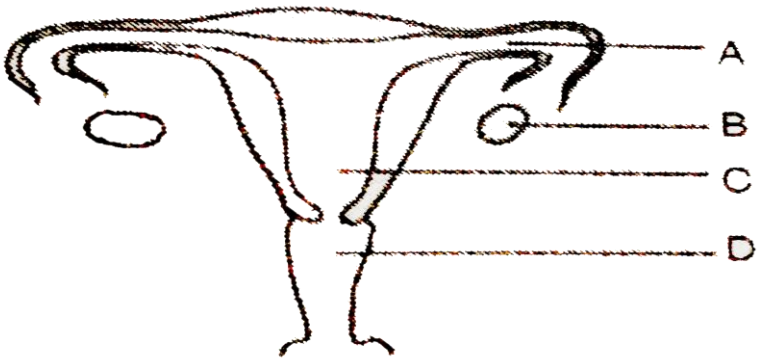
Instructions:

(i) This question paper consists of 39 questions in 3 sections. Section A is Biology; Section B is Chemistry and Section C is Physics.

(ii) All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.

Q.No.	**Section – A**	Marks
1.	In humans, carbohydrates are stored in the form of - A. glucose B. starch C. glycogen D. pyruvate	1
2.	In a person the tubular part of nephron is not functioning at all. What will its effect be on urine formation? A. The urine will not be formed B. Quality and quantity of urine is unaffected C. Urine is more concentrated D. Urine is more diluted	1
3.	During puberty, teenagers experience physical changes due to the release of hormones. Which gland is primarily involved in this process? A. thyroid gland B. pituitary gland C. adrenal gland D. pancreas	1
4.	Part of brain controlling voluntary movements - A. Cerebellum B. Medulla C. Cerebrum D. Pons	1
5.	If a round, green seeded pea plant (RRyy) is crossed with wrinkled, yellow seeded pea plant, (rrYY) the seeds produced in F1 generation are - A. round and yellow B. round and green C. wrinkled and green D. wrinkled and yellow	1
6.	Which trophic level will have maximum pesticides by biomagnification? A. Grass B. Grasshopper C. Frog D. Hawk	1
7.	Which of these statements would be correct if the population of snakes is greatly increased?  A. Population of green plants will decrease. B. Population of frogs will decrease. C. Population of snakes will decrease. D. Population of hawks will decrease.	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): DNA copying is essential in reproduction. Reason (R): It maintains stability of species.	1
9.	Assertion (A): Energy available at each trophic level decreases. Reason (R): Only 1% of energy passes to next trophic level.	1
10.	(i) Draw a labelled diagram of stomata. (ii) Explain how guard cells regulate opening and closing of stomata.	2
11.	**Attempt either option A or B** **A):-** The image below shows the cross section of a blood vessel of a human arm.  i) What is the type of blood vessel shown in the image? ii) Which blood vessel carries oxygenated blood from the lungs to the heart? **OR** **B):-** State two differences between arteries and veins.	2
12.	**Attempt either option A or B** A. State one reason to justify the position of man at the epics of most food chain. **OR** B. If all the wastes we generate are biodegradable, will this have no impact on the environment?	2
13.	Define reflex action & draw reflex arc involved in withdrawal of hand from hot object.	3
14.	(i) Does the genetic combination of the mother play a significant role in determining sex of a new born child? (ii) How is the sex of the child determined in human beings? Draw a diagrammatic sketch showing sex determination in human beings.	3
15.	A group of students conducted an experiment to compare aerobic and anaerobic respiration. They observed that during aerobic respiration, glucose breaks down completely in the presence of oxygen to release energy, carbon dioxide, and water. In anaerobic conditions, glucose breaks down partially to form alcohol or lactic acid along with lesser energy. They also noted that respiration is essential for ATP formation, which powers cellular activities. (i) Complete breakdown of glucose occurs in which type of respiration?	4

	(ii) Name the end products formed when glucose undergoes anaerobic respiration in human muscle cells. (iii) Identify the organelle where aerobic respiration mainly occurs. **Attempt either subpart (iv) or (v)** (iv) ATP is often called the "energy currency" of the cell. Justify this statement in one line. **OR** (v) What are the products formed during the fermentation in Yeast?	
16.	**Attempt either option A or B.** **A:-** In following diagram: -  (i) Identify part B. (ii) Identify part A and also write its functions. (iii) Identify part C and write in brief about the important event occurring here during reproduction. **OR** **B.** The gardener noticed that some plants in his garden reproduced without seeds. He decided to explore different methods of asexual reproduction in plants and animals. (i) Identify the method of reproduction in Yeast and explain how it helps in rapid increase of population. (ii) Analyse why potato and Bryophyllum are considered good examples of vegetative propagation. (iii) Compare binary fission in Amoeba and Leishmania, focusing on plane of division. (iv) Predict the disadvantage if only asexual reproduction existed in all organisms. (v) Evaluate the economic importance of artificial vegetative propagation techniques for farmers.	5
	Section B	
17.	Seema got her room walls white washed with slaked lime. After two-three days she found that white washing gave a shiny finish on the walls. Predict the reaction that has taken place on the whitewashed walls. A. Slaked lime reacts with CO_2 B. Slaked lime reacts with NO_2 C. Slaked lime reacts with O_2 D. Slaked lime reacts with SO_2	1
18.	Classify the type of reaction in which exchange of ions between reactants takes place. A. displacement reaction B. double displacement reaction C. combination reaction D. decomposition reaction	1

19.	Colour of methyl orange in acid is: - A. Yellow B. Red C. Pink D. Green	1
20.	Your teacher demonstrated a simple experiment by squeezing lemon juice on a chalk piece, what will you observe? A. Change in colour of the chalk B. No reaction will take place C. Formation of salt. D. Production of bubbles due to CO_2 gas	1
21.	Which of the following drinks would cause more damage to the tooth enamel due to its pH level? A. Coffee (pH = 5) B. Milk (pH = 6.4) C. Water (pH = 7) D. Soda (pH = 3.3)	1
22.	The correct arrangement of metals Mg, Zn, Fe and Al in decreasing order of their reactivity with dilute acids is: A. Al > Mg > Zn > Fe B. Al > Mg > Fe > Zn C. Mg > Al > Zn > Fe D. Mg > Al > Fe > Zn	1
23.	Cinnabar is an ore of A. Mercury B. Copper C. Calcium D. Lead	1
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24.	**Assertion: -** While converting Ethanol to Ethene, some drops of conc.H_2SO_4 are added. **Reason:** - In the reaction of conversion of Ethanol to Ethene, concentrated H_2SO_4 removes water molecules and also acts as a catalyst.	1
25.	A metallic element, M, has the following properties: -can be cut with a knife -occurs naturally as its chloride, of formula MCl - its oxide dissolves in water to form the hydroxide (i) State the method of extraction of the metal M. (ii) Name the major by-product obtained in the process.	2
26.	(i) Identify the oxidising and reducing agents in the reaction: $2Mg + O_2 \rightarrow 2MgO$ (ii) A student heated a blue crystalline substance. It turned white and released steam. Identify the substance and type of reaction. Write the balanced equation also.	3
27.	**Attempt either option A or B** **A.** (i) A student is given a sample of an ore containing copper sulphide. How would he extract copper metal from this ore? (ii) How is the thermit reaction used in practical applications? **OR** **B.** Write chemical equations for the following: - (i) Reaction between Aluminium and oxygen.	3

	(ii) Reaction of potassium with cold water. (iii) Reaction of Iron with steam.	
28.	A dry pellet of a common base B when kept in open absorbs moisture and turns sticky. The compound is also a byproduct of the Chlor-alkali process. (i). Identify B (ii). What is the chemical nature of this compound? (iii). Write the chemical equation for its reaction with hydrochloric acid? Mention the type of reaction. **OR** (iii) Why is this process named as Chlor-alkali process?	4
29.	**Attempt either option A or B.** **A.** (i) Carbon forms covalent bonds. Explain why it does not form ionic bonds. (ii) Name the second member each of alkane and alkyne? (iii) Show how many isomers are possible for the saturated hydrocarbon having four carbon atoms. **OR** **B**. A compound X is used in cough syrups and many tonics. It is also soluble in water in all proportions. i) Name the compound X and write its chemical formula ii) Which gas evolves when the compound X reacts with sodium? Write a chemical equation for the reaction. iii) What happens when compound X is heated in the presence of alkaline potassium permanganate? iv) Name the product formed when compound X reacts with ethanoic acid. Mention its one use.	5
	Section - C	
30.	A doctor has prescribed a corrective lens of -3.0D. Which type of lens is this? A. diverging lens B. converging lens C. bi-focal lens D. Plane	1
31.	What is the main function of pupil in a human eye? A. To focus light B. To regulate the amount of light entering the eye C. To provide colour vision D. To protect the eye from dust and foreign particles	1
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32.	**Assertion:** The word **AMBULANCE** on the hospital vans is written in the form of its mirror image. **Reason:** The image formed in a plane mirror is same size of the object.	1

33.	Explain the difference between absolute and relative refractive index.	2
34.	Domestic circuits are always connected in parallel. Justify this arrangement (Any two points). **OR** State Joule's law of heating. Write its mathematical expression.	2
35.	i) . How will you use two identical prisms so that a narrow beam of white light incident on one prism emerges out of the second prism as white light? Show through a diagram. ii) . A blue coloured ray is passed through a glass prism . What will be the colour of the emergent ray?	3
36.	(i) With the help of a diagram, show how the magnetic field behaves at the centre of a current-carrying circular loop. (ii) Draw the magnetic field lines around a bar magnet.	3
37.	Give reasons for the following: - (i) Earthing is necessary in a domestic circuit. (ii) A fuse is used in a circuit. (iii) A three-pin plug is used for heavy appliances.	3
38.	While taking a bath, Ravi's soap dropped into a bucket filled with water. He put his hand in water to pick the soap. He found that soap appears at a higher position than its actual position. i) Explain why the soap appeared raised? ii) If the water in the bucket is replaced with kerosene then how would the apparent position of soap change? iii) The absolute refractive indices of water and glass is 4/3 and 3/2 respectively. If the speed of light in glass is 2 x10^8 m/s, find the speed of light in vacuum. **OR** iii) An object is placed at a distance of 15cm from the pole of convex mirror of focal length 20cm. Draw the ray diagram & find the position, and nature of the image.	4
39.	**Attempt either option A or B.** **A.** Two wires A and B are of equal length, different cross sectional areas and made of the same metal. (i) Name the property which is the same for both the wires. ii) Name the property which is different for both the wires. iii) Give the expression to show the relation between resistance and resistivity. iv) If the resistance of wire A is four times the resistance of wire B, calculate the ratio of the cross sectional areas of the wires and the ratio of the radii of the wire. **OR** **B.** i) How is electric current related to the potential difference across the terminals of a conductor? ii) Draw labelled circuit diagram to verify this relation. iii) Why should an ammeter have low resistance? iv) What kind of graph is obtained by plotting values of V and I?	5