

TERM-I EXAMINATION-(2026-27)
CLASS X – SCIENCE(086)

Time: 03hours

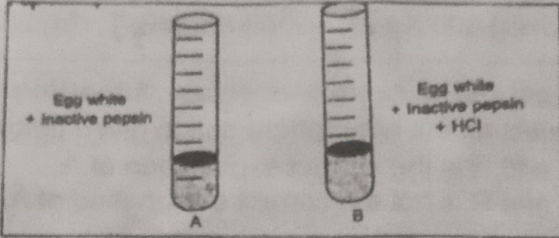
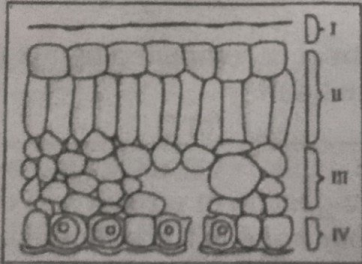
Max. Marks: 80

General Instructions:

No. of pages:08

(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.

Section – A		Marks
1	A student sets up an experiment to study the role of enzymes in digestion of food.  In which test tube digestion of protein will occur- (a) Test tube A as pepsin will break down protein into simple molecule. (b) Test tube B as HCl will break down protein into simple molecule. (c) Test tube A as pepsin will break down into simple molecule. (d) Test tube B as HCl will activate pepsin for breakdown of protein into simple molecule.	1
2	In the given transverse section of leaf identify the layer of cells where maximum photosynthesis takes place-  (a) I, II (b) II, III (c) III, IV (d) I, IV	1
3	3. What is the direction of deoxygenated blood from right atrium of the heart? (a) Towards the lungs. (b) Towards the left atrium of the heart (c) Towards the upper body (d) Towards the lower body	1

4	Read the following statements: X: Amount of CO ₂ produced per molecule of glucose during Aerobic respiration. Y: Amount of CO ₂ produced per molecule of glucose during fermentation by yeast. Which of the following is TRUE about X and Y? (a) X is more than Y (b) X is less than Y (c) X is equal to Y (d) cannot be determined	1
5	Which statement shows interaction of an abiotic component with a biotic component in an ecosystem? (a) A grasshopper feeding on a leaf. (b) Rainwater running down a lake. (c) An earthworm making a burrow in the soil. (d) A mouse fighting with another mouse for food.	1
6	Which of the following gets biomagnified at different levels in a food chain? (a) Carbon monoxide (b) CFCs (c) DDT (d) Manure	1
7	In a food chain, if the energy at the fourth trophic level is 5K ~~g~~ J, what will be the energy available at the producer level? (a) 50K ~~g~~ J (b) 500 K ~~g~~ J (c) 5000K ~~g~~ J (d) 250 K ~~g~~ J	1

The following two questions consist of two statements – **Assertion (A)** and **Reason (R)**. Answer these questions by selecting the appropriate option given below:

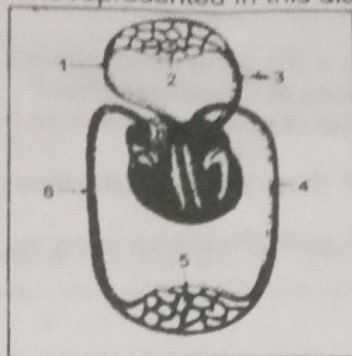
- A. Both A and R are true, and R is the correct explanation of A.
- B. Both A and R are true, and R is not the correct explanation of A.
- C. A is true but R is false.
- D. A is false but R is true.

8	Assertion (A): Polythene bags and plastic containers are non-biodegradable substances. Reason (R): Non-biodegradable wastes can be broken down by microorganisms into natural, simple and harmless substances. (a) A (b) B (c) C (d) D	1
9	Assertion (A): The average number of heart beat of a person at rest is 92 times per minute Reason (R): A complete heartbeat is comprised of one contraction and one relaxation of the heart. (a) A (b) B (c) C (d) D	1
10	Attempt either option A or B. (A) (a) How would it effect the digestion of protein and carbohydrate in the duodenum of man if there is a blockage in the pancreatic duct? (b) How are the alveoli designed in human being to maximise the area for exchange of gases OR (B) (a) names the substances other than water that are reabsorbed during urine formation. (b) what are the two parameters that decide the amount of water that is reabsorbed in the kidneys?	2

11

- (a) Label parts 3 and 6 in the given diagram
(b) What are the two functions represented in this diagram

2



12

Give any two ways in which biodegradable substances would affect the environment.

2

13

We often hear people complain about 'acidity'.

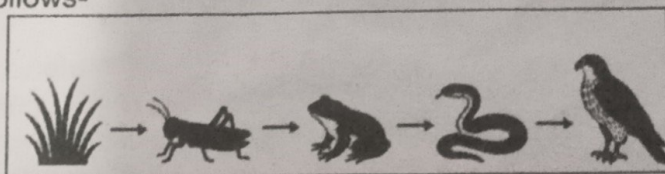
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- (a) Overproduction of which substance is most likely the reason for the complaint? Why is the production of this substance necessary?
(b) How does the stomach prevent itself from overproduction of this substance?

14

Observe the following food chain of grassland ecosystem and answer the questions that follows-

3



- (a) Explain how grass captures energy and why is it essential in the grassland ecosystem?
(b) Imagine a disease affects the frog population, how might this impact the grass population in the short term?
(c) Applying your knowledge of food webs, explain how this disease would potentially affect the hawk's population.

15

Case based questions:

Mary, John and Sarah attend a health check-up camp where their blood pressure readings are taken using a device 'X'. The reading for each individuals are as follows-

Participants	Blood pressure readings(mmHg)	
	A	B
Mary	140	90
John	110	75
Sarah	160	95

- (a) Based on the blood pressure readings of Mary, John and Sarah, Identify A and B.
(b) Identify the device 'X' and what does it signify?
(c) Among Mary, John and Sarah, which one of them shows a healthier body condition based on their blood pressure readings? Why?

OR

1

1

2

2

	(c) Analysing the Sarah's blood pressure, what are the potential health implications she has been suffering from?	
16	Attempt either A or B- (A) (a) How is Ozone formed in the outer atmosphere? (b) What are the two causes of Ozone depletion? (c) Mention any two impact of ozone depletion on human health. OR (B) (a) What are decomposers? State any two roles they play in our biotic environment. (b) How does an artificial ecosystem differ from a natural ecosystem? (Any 2)	2 1 2 3 2

Section – B

17	Which of the following is exothermic process? i. Reaction of water with quick lime ii. dilution of an acid iii. evaporation of water iv. sublimation of camphor (a) i) and iv) (b) ii) and iii) (c) i) and ii) (d) iii) and iv)	1
18	Which of the following equation represent redox reactions and what are the values for 'p' and 'q' in these equations ? Equation: 1- $\text{Fe}_2\text{O}_3 + 2\text{Al} \rightarrow \text{Al}_2\text{O}_3 + p\text{Fe}$ Equation: 2- $2\text{C}_4\text{H}_{10} + 13\text{O}_2 \rightarrow 8\text{CO}_2 + q\text{H}_2\text{O}$ (a) Only eqn. 1 is redox reaction, $p = 1$ and $q = 3$ (b) Both eqn. 1 and 2 are redox reactions, $p = 2$ and $q = 3$ (c) Only eqn. 2 is redox reaction, $p = 2$ and $q = 10$ (d) Both eqn. 1 and 2 are redox reactions, $p = 2$ and $q = 10$	1
19	In the reaction of aqueous solution of barium chloride with aqueous solution of sodium sulphate, the aqueous solution formed will be: (a) BaCl_2 (b) BaSO_4 (c) Na_2SO_4 (d) NaCl	

20	Sodium hydrogen carbonate when added to acetic acid evolves a gas. Which of the following statements is true about the gas evolved? (i) It turns lime water milky. (ii) It extinguishes a burning splinter. (iii) It dissolves in a solution of sodium hydroxide. (iv) It has a pungent odour. (a) (i) and (ii) (b) (i), (ii) and (iii) (c) (ii), (iii) and (iv) (d) (i) and (iv)	1
21	An aqueous solution 'A' turns phenolphthalein solution pink. On addition of an aqueous solution 'B' to 'A', the pink colour disappears. Which of the following statement is true for solution 'A' and 'B'? (a) A is strongly basic and B is a weak base. (b) A is strongly acidic and B is a weak acid. (c) A has pH greater than 7 and B has pH less than 7. (d) A has pH less than 7 and B has pH greater than 7.	1
22	Acid present in tomato is (a) Methanoic acid (b) Acetic acid (c) Lactic acid (d) Oxalic acid	1
23	Fresh milk has pH of 6. To delay its curdling, a chemical substance is added to it which is- (a) Sodium carbonate (b) baking powder (c) sodium hydroxide (caustic soda) (d) Baking soda	1

The following question consists 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.

24	Assertion (A): Pure water is neither acidic nor basic Reason (R): pH of solution is inversely proportional to concentration of hydrogen ion in it. (a) A (b) B (c) C (d) D	1
25	When a green- coloured ferrous sulphate crystals is heated, it loses water and changes colour. i. Write the balanced chemical equation for the reactions involved. ii. Why is this an example of a thermal decomposition reaction?	2

26	1 g of copper powder was taken in a China dish and heated. What change takes place on heating? When HCl is added over this heated substance, a visible change is seen in it. Give the chemical equations of reactions, the name and the colour of the products formed in each case.	3
27	Attempt either option A or B (A) i. What is chlor alkali process ? ii. What will happen when Zn metal react with sodium hydroxide solution in a test tube and then warmed ? Justify your answer with a chemical equation. OR (B) i. Salt A commonly used in bakery products on heating gets converted into another salt B which itself is used for removal of hardness of water and a gas C is evolved. Identify A , B and C. ii .Write an equation to show the reaction between plaster of paris and water	3
28	Case based questions: Read the following passage and answer the questions that follow: A student sets up an apparatus for the electrolysis of water using two electrodes connected to a direct current source. The electrodes are immersed in water, and two inverted test tubes are placed over the electrodes to collect the gases produced. On passing electric current, gases are collected at both electrodes. The gas collected at the cathode is approximately twice the volume of the gas collected at the anode. (a) What type of reaction takes place? (b) Explain why this is an example of an endothermic reaction? (c) Name the gas collected at both the electrode. Why is the ration of the gas collected in the ratio of 2:1 OR (c) The reaction does not take place if a few drops of dilute sulphuric acid are not added to water. Why?	1 1 2
29	Attempt option A or B. (A) Give reason why: - Tartaric acid is added in baking powder - Copper sulphate crystals are blue in colour. - For a visually impaired students, olfactory indicators are more useful than litmus. - Glucose is not considered as an acid. - Gypsum should not be heated more than 373 K. OR	5

- (B) (i) Explain why tooth decay takes place when pH of the mouth become less than 5.5.
(ii) What will happen when:
(a) Dry chlorine gas is passed over slaked lime?
(b) Excess of CO_2 is passed through lime water?
(c) Marble is treated with hydrochloric acid?

5

Section – C

- 30 Which statement about the retina is correct?
(a) It controls the amount of light entering the eye.
(b) It changes the focal length of the eye lens.
(c) It contains light-sensitive cells that convert light into electrical signals.
(d) It acts as the main refracting surface of the eye.

1

- 31 The focal length corresponding to a power of +1.5D is approximately:
(a) 15 cm
(b) 33.3 cm
(c) 66.7 cm
(d) 150 cm

1

The following question consists 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.

- 32 **Assertion(A):** The power of the eye lens increases when a person focuses on a nearby object.
Reason(R): The ciliary muscles contract and make the eye lens more curved.

1

- (a) A (b) B (c) C (d) D

- 33 A student says, "Stars twinkle because they continuously produce varying amounts of light." Is this explanation correct? Give a scientific reason.

2

- 34 The angle of incidence of a ray in air is increased while it enters glass. Explain how the angle of refraction changes. Justify your answer using Snell's law.

2

OR

Two media have refractive indices 1.2 and 1.8. Compare the speeds of light in these media. Which medium is optically denser? Give reasons

- 35 A convex lens forms a real image of an object placed 40cm from it. The image is of same size as the object. (a) Find the focal length. (b) If the object is moved to 30cm, determine the new image position. (c) Calculate the new magnification.

3

- 36 Explain the formation of a rainbow in terms of dispersion, refraction and internal reflection of sunlight by raindrops. Draw a ray diagram to show the phenomenon.

3

- 37 (i) Give reasons:
A. A beam of light passes through a colloidal solution and its path becomes visible.
B. Red lights are preferred for danger signals and warning lamps.
(ii) Draw a well labelled figure for recombination of the spectrum of white light

3

38

Case based questions:

A student records the following observations for a lens:

- Object distance = 20 cm
- Image distance = -40 cm
- Magnification = +2

(a) Determine the type of image formed and explain the significance of the signs of v and magnification.

2

(b) Calculate the focal length of the lens and identify whether it is a convex or concave lens.

2

OR

(b) If the object is moved 10 cm closer to the lens, predict qualitatively how the position and nature of the image will change. Give a reason.

2

39

Attempt option A or B.

(A) A student sitting at the back of the classroom is unable to read the writing on the board clearly but can read a book kept close to the eyes.

(a) Identify the defect of vision and give any one cause of this defect.

1

(b) Where is the image formed in the defective eye?

1

(c) Which type of lens is used for correction and why?

1

(d) Draw a labelled ray diagram showing how the defect is corrected.

2

OR

(B) A hypermetropic eye has a near point of 80 cm. A convex lens of power P is prescribed so that the person can read a book kept at 20 cm. Calculate :

5

a. The focal length of the lens.

b. The power of the correcting lens.

c. Draw a labelled ray diagram showing how the defect is corrected.

d. Give two causes of this defect.

END OF THE PAPER