

Directorate of Education, GNCT of Delhi
Mid Term Examination Practice Paper (Session: 2026-27)
Class:X; Subject: SCIENCE (086)

Maximum Marks: 80

Duration: 3 hours

General Instructions:

- 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 sections are compulsory. However internal choice is provided in some questions. A student is expected to attempt only one of these questions.**

Section A		
Q.No.	Question	Marks
1.	The walls of arteries are thick and elastic primarily because they: A. Carry blood at low pressure. B. Transport blood away from the heart under high pressure. C. Prevent the backflow of blood using valves. D. Carry only deoxygenated blood.	1
2.	A pea plant's tendrils curl around a stick when they come into contact with it. Which type of tropic movement does this demonstrate? A. Geotropism B. Chemotropism C. Phototropism D. Thigmotropism	1
3.	Ozone in the upper atmosphere is produced when oxygen (O ₂) molecules are exposed to: A. Infrared radiation B. Visible light C. Ultraviolet (UV) radiation D. Gamma rays	1
4.	Which of the following correctly shows the pathway of urine through the human excretory system? A. Kidney → Urethra → Urinary bladder → Ureter B. Kidney → Urinary bladder → Ureter → Urethra C. Kidney → Ureter → Urinary bladder → Urethra D. Urinary bladder → Kidney → Ureter → Urethra	1
5.	The part in which gustatory receptors are present in human body is: A. Skin B. Tongue C. Inner ear D. Inner lining of nose	1
6.	Which of the following describes the flow of energy through the various trophic levels in an ecosystem? A. Cyclic B. Multidirectional C. Reversible D. Unidirectional	1

7.	Involuntary actions such as salivation and blood pressure are controlled by which part of the human brain? A.Cerebrum B.Cerebellum C.Pons D.Medulla	1
The following two questions no.8 & 9 consist of two statements- Assertion (A) and Reason (R). Answer these questions by selecting 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): Xylem transports water and minerals from the roots to the leaves. Reason (R): Xylem transports food prepared by the leaves to all parts of the plant.	1
9.	Assertion (A): Tertiary consumers are usually found at the highest trophic level in a food chain. Reason (R): Tertiary consumers receive the maximum amount of energy available in the ecosystem.	1
10.	Why do we get muscle cramps during heavy physical exercise? Explain with reason.	2
11.	<u>Attempt either (A) or (B)</u> A. How does human body respond when adrenaline is secreted into the blood? OR B. Name the hormone secreted by (i) ovaries and (ii) pituitary stating one main function of each.	2
12.	In a grassland ecosystem containing grass, grasshopper, frogs and snakes, pesticide was sprayed to control insects. Which organisms will show the highest concentration of pesticides in its body? Name and describe the ecological phenomenon involved.	2
13.	Describe the role of sensory neurons, relay neurons and motor neurons during a reflex action?	3
14.	How does the pH medium of food change as it moves from the stomach to the small intestine in human digestive system and why is this change necessary?	3
15.	Plants coordinate their growth and development with the help of chemical substances called plant hormones. Auxin is produced at the shoot tip and helps the cells to grow. Gibberellins promote growth in the stem, while cytokinins promote cell division. Absciscic acid inhibits growth and is involved in responses to environmental stresses. (a). Name the plant hormone that promotes growth in the stem. (b). Which plant hormone inhibits growth and helps the plant respond to environmental stress? <u>Attempt either (c) or (d).</u> (c).How does Auxin regulate phototropic movement in plants? OR (d).Enlist any two major functions of Gibberellins.	4
16.	<u>Attempt either option A or B.</u>	5

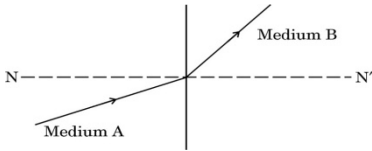
	A. (i) Briefly describe the three major events involved in the conversion of solar energy into chemical energy during photosynthesis in green plants. (ii) Describe two important functions of stomata in plants. OR B. (i) Explain the various steps involved in the process of nutrition in Amoeba. (ii) Describe two methods used by plants for the elimination of waste materials.	
Section B		
17.	In a laboratory activity, a student adds a few zinc granules to a conical flask containing dilute hydrochloric acid and observes gas bubbles. He then touches the flask and notices it has become warm. What do these observations indicate? A. Only a physical change has occurred. B. A chemical reaction has occurred which is endothermic. C. A chemical reaction has occurred which is exothermic. D. The gas evolved is carbon dioxide.	1
18.	What is the colour of methyl orange indicator in acidic and basic media respectively? A. Red in acidic medium, yellow in basic medium B. Yellow in acidic medium, red in basic medium C. Colourless in acidic medium, pink in basic medium D. Pink in acidic medium, colourless in basic medium	1
19.	What is the chemical formula of POP (Plaster of Paris)? A. $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ B. $\text{CaSO}_4 \cdot 3\text{H}_2\text{O}$ C. $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$ D. $\text{CaCO}_3 \cdot \frac{1}{2}\text{H}_2\text{O}$	1
20	Equal concentrations of water, acetic acid and hydrochloric acid are taken. Which one of the following represents the correct increasing order of their pH values (from most acidic to least acidic)? A. Water < Acetic acid < Hydrochloric acid B. Water < Hydrochloric acid < Acetic acid C. Acetic acid < Water < Hydrochloric acid D. Hydrochloric acid < Acetic acid < Water	1
21	Which pair of metal oxides shows amphoteric behaviour, i.e., they react with both acids and bases to form salt and water? A. Al_2O_3 and ZnO B. CuO and SO_3 C. Na_2O and MgO D. Fe_2O_3 and CaO	1

The following question no.22 consists of two statements – Assertions (A) and Reason (R). Answer the question 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 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.

22	Assertion (A): When quick lime is added to water, it produces heat. Reason (R): Quick lime forms slaked lime when it comes in contact with water and produces heat.	1
23	A shiny brown coloured element 'X' on heating in air becomes black in colour. Name the element 'X' and the black coloured compound formed.	2
24	A white powder is added while baking cakes to make it soft and spongy. Name its main ingredients. Write the chemical reaction taking place when the powder is heated during baking.	2
25	<u>Attempt either (I) or (II).</u> I. Give reasons for the following: (a) Only one half of water molecule is shown in the formula of plaster of Paris. (b) Sodium hydrogen carbonate is used as an antacid. (c) On strong heating, blue coloured copper sulphate crystals turn white. OR II. During electrolysis of brine, a gas 'G' is liberated at anode. When this gas 'G' is passed through slaked lime, a compound 'C' is formed, which is used for disinfecting drinking water. (a) Write formula of 'G' and 'C'. (b) State the chemical equations involved. (c) What is common name of compound 'C'? Give its chemical name also.	3
26	(a) Draw the electron-dot structure for calcium and oxygen. (b) Show the formation of CaO by the transfer of electrons. (c) State whether it will conduct electricity or not. Give reason for your answer.	3
27	In the laboratory while doing experiment on electrolysis of water, a student added a few drops of dilute sulphuric acid to water and passed electricity through it. He observed small bubbles of gas at both electrodes as water was electrolysed and decomposed into its constituents. (a) Why is dilute sulphuric acid added to water? (b) Name the gases collected at the cathode and anode respectively?	4

	<u>Attempt either (c) or (d).</u> (c) Write the reaction involved during electrolysis of water What is the volume ratio of the gas collected at the cathode to the gas collected at the anode? OR (d) Define electrolysis of water.	
28	<u>Attempt either (I) or (II).</u> (I) (a) Why are metals like sodium, calcium, magnesium, aluminium etc. obtained by electrolytic reduction? (b) State briefly how you will extract iron from its ore. Write all the chemical reactions involved in it. OR (II) (a) Differentiate between roasting and calcination (give two points with example). (b) Describe the procedure for obtaining zinc from its ores. Provide the balanced chemical equations involved in the process.	5
Section C		
29	Focal length of plane mirror is - A. Infinity B. Zero C. Negative D. None of these	1
30	The radius of curvature of a mirror is 20cm the focal length is - A. 20cm B. 10 cm C. 40 cm D. 5 cm	1
31	Vision defect of far-sightedness is found in the eye. Defect is named as: A. Myopia B. Cataract C. Hypermetropia D. Presbyopia	1
32	The image is formed inside the human eye at- A. Pupil B. Cornea C. Retina D. Eye lens	1

The following question no.33 consists of two statements – Assertions (A) and Reason (R). Answer the question 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.		
33	Assertion (A): A normal human eye can see distant objects clearly without the help of any external optical device. Reason (R): For a normal eye, the farthest point up to which the eye can see objects clearly is infinity.	1
34	<u>Attempt either (A)or (B).</u> A) What is the function of ciliary muscles of human eye? OR B) What is Tyndall effect?	2
35	A ray of light enters from Medium A into Medium B as shown in the given figure :  (a) Which one of these two media is optically denser than the other medium? Justify your answer. (b) If the speed of light in Medium A is v_A and in medium B is v_B, then what is the refractive index of medium B with respect to medium A? <u>Only For Visually Impaired Students</u> A ray of light travels from Medium A and enters Medium B. On measuring the angles, it is found that the angle of refraction in Medium B is smaller than the angle of incidence in Medium A i.e., the ray bends towards the normal on entering Medium B. (a) Which of the two media, A or B, is optically denser? Justify your answer. (b) If the speed of light in Medium A is v_A and in Medium B is v_B, write the expression for the refractive index of Medium B with respect to Medium A. (c) Based on your answer to part (a), state whether v_A is greater than or less than v_B. Give a reason.	3
36	A person is unable to read a book placed closer than 1 metre from his eyes. Identify the defect in vision in his eyes. Draw the diagrams to show the defect of vision and its correction .	3

	<u>Only For Visually Impaired Students</u> A person can see distant objects clearly but is unable to see nearby objects clearly. Answer the following: (a) Name the defect of vision. (b) At which point does the image of a nearby object tend to be formed in this defect? (c) Name the type of lens used to correct this defect.	
37	What is dispersion of white light? Explain how a glass prism produces a spectrum of white light.	3
38	The students in a class took a thick sheet of cardboard and made a small hole in its centre. Sunlight was allowed to fall on this small hole and they obtained a narrow beam of white light. A glass prism was taken and this light was allowed to fall on one of its faces. A beautiful band of seven colours appeared on the nearby screen. They studied this spectrum and concluded that white light is made up of seven colours. (a) Give any one more instance in which this type of spectrum is observed. (b) What happens to white light in the above cases? <u>Attempt either (c) or (d).</u> (c) List two conditions necessary to observe a rainbow. OR (d) Draw a ray diagram to show the formation of a rainbow.	4
39	<u>Attempt either (A) or (B).</u> (A) (a) light enters from air to kerosene having a refractive index of 1.47. what is the speed of light in kerosene? (b) State the laws of refraction of light. Explain the term ‘ Absolute refractive index of a medium’. OR (B) (a) A 5cm tall object is placed perpendicular to principal axis of a convex lens of focal length 10cm. if the object is placed 30cm away from the lens, find the position, size and nature of image. (b) What is meant by power of lens? Write its SI unit.	5