

# Directorate of Education, GNCT of Delhi

## PRACTICE PAPER

Session: 2024-25

CLASS X

Subject: Science (086)

Duration: 3 hours

Max. Marks: 80

### General Instructions:

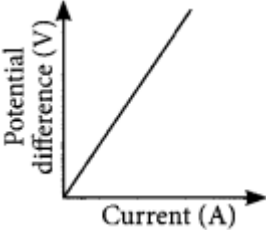
- All questions would be compulsory. However, an internal choice of approximately 33% would be provided. 50% marks are to be allotted to competency-based questions.
- Section A would have 16 simple/complex MCQs and 04 Assertion-Reasoning type questions carrying 1 mark each.
- Section B would have 6 Short Answer (SA) type questions carrying 02 marks each.
- Section C would have 7 Short Answer (SA) type questions carrying 03 marks each.
- Section D would have 3 Long Answer (LA) type questions carrying 05 marks each.
- Section E would have 3 source based/case based/passage based/integrated units of assessment (04 marks each) with sub-parts of the values of 1/2/3 marks.

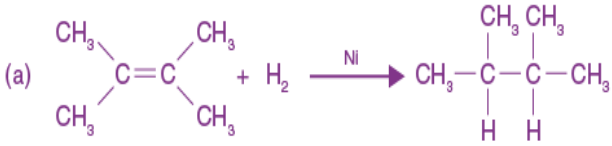
<b>Section-A</b>		
Question 1 to 16 are multiple choice questions. Only one of the choices is correct. Select and write the correct choice as well as the answer to these questions.		
1	The arrangement for Copper, Tin, Lead and Mercury, according to the reactivity series, is: A. Tin > Lead > Copper > Mercury B. Lead > Copper > Mercury > Tin C. Copper > Mercury > Tin > Lead D. Mercury > Tin > Lead > Copper	1
2	$\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ is known as – A. Baking soda B. Baking powder C. Washing soda D. Bleaching powder	1

3	<p>Which among the following diseases is not sexually transmitted?</p> <p>A. Syphilis B. Hepatitis C. HIV-AIDS D. Gonorrhoea</p>	1
4	<p>Which statement is true for the reflection of light?</p> <p>A. The angle of incidence and reflection are equal. B. The reflected light is less bright than the incident light. C. The sum of the angle of incidence and reflection is always greater than 90°. D. The beams of the incident light, after reflection, diverge at unequal angles.</p>	1
5	<p>Anuradha adds barium hydroxide to hydrochloric acid to form a white-coloured barium chloride. Which of the following option gives the balanced chemical equation of the reaction?</p> <p>A. <math>\text{HCl} + \text{Ba}(\text{OH})_2 \rightarrow \text{BaCl}_2 + 2\text{HOH}</math> B. <math>2\text{HCl} + \text{Ba}(\text{OH})_2 \rightarrow \text{BaCl}_2 + 2\text{HOH}</math> C. <math>2\text{HCl} + \text{Ba}(\text{OH})_2 \rightarrow \text{BaH}_2 + 2\text{HCl} + \text{O}_2</math> D. <math>\text{HCl} + 2\text{Ba}(\text{OH}) \rightarrow 2\text{BaCl}_2 + 2\text{HOH} + \text{O}_2</math></p>	1
6	<p>A person cannot see distinctly objects kept beyond 2m. This defect can be corrected by using lens of power</p> <p>A. +0.5D B. -0.5D C. +0.2D D. -0.2D</p>	1
7	<p>Which of the following events in the mouth cavity will be affected if salivary amylase is lacking in the saliva?</p> <p>A. Starch breaking down into sugars. B. Proteins breaking down into amino acids. C. Absorption of vitamins. D. Fats breaking down into fatty acids and glycerol.</p>	1
8	<p>Which of the following is neutral salt?</p> <p>A. <math>\text{NH}_4\text{Cl}</math> B. <math>\text{CH}_3\text{COONH}_4</math> C. <math>\text{CH}_3\text{COONa}</math> D. <math>\text{Na}_2\text{CO}_3</math></p>	1
9	<p>The magnetic field inside a long straight solenoid-carrying current</p> <p>A. is zero. B. decreases as we move towards its end. C. increases as we move towards its end. D. is the same at all points.</p>	1

10	<p><math>C_3H_8</math> belongs to the homologous series of</p> <p>A. Alkynes B. Alkenes C. Alkanes D. Cycloalkanes</p>	1
11	<p>Which of the following represents voltage?</p> <p>A. work done/ (current x charge) B. work done x charge C. (work done x time)/ current D. work done x charge x time</p>	1
12	<p>Which of the following is the formula of Butanoic acid?</p> <p>A. <math>CH_3CH_2CH_2CH_2COOH</math> B. <math>COOH - CH_2 - CH_2 - CH_2 - CH_3</math> C. <math>CH_3 - CH - CH_2 - CH_3</math>                                       COOH D. <math>CH_3 - CH_2 - CH_2 - COOH</math></p>	1
13	<p>Unit of electric power may also be expressed as-</p> <p>A. volt ampere B. kilowatt hour C. watt second D. joule second</p>	1
14	<p>Food web is constituted by</p> <p>A. relationship between the organisms and the environment B. relationship between plants and animals C. various interlinked food chains in an ecosystem D. relationship between animals and environment.</p>	1
15	<p>A female is suffering from an irregular menstrual cycle. The doctor prescribed her some hormonal tablets. Which option shows that the hormone she lacks in her body is from the endocrine gland?</p> <p>A. Oestrogen B. Testosterone C. Adrenalin D. Thyroxin</p>	1
16	<p>Which of the following will undergo an addition reaction?</p> <p>A. <math>CH_4</math> B. <math>C_3H_8</math> C. <math>C_2H_6</math> D. <math>C_2H_4</math></p>	1

<p>Question No. 17 to 20 consist of two statements – <b>Assertion (A)</b> and <b>Reason (R)</b>. Answer these questions by selecting the appropriate option given below:</p> <p>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.</p>		
17	<p><b>Assertion (A)</b> : The sex of a child in human beings will be determined by the type of chromosome he/she inherits from the father.  <b>Reason (R)</b> : A child who inherits 'X' chromosome from his father would be a girl (XX), while a child who inherits a 'Y' chromosome from the father would be a boy (XY).</p>	
18	<p><b>Assertion (A)</b>: Most of the carbon compounds are good conductors of electricity.  <b>Reason (R)</b>: They do not dissociate to form ions and remain as molecules.</p>	1
19	<p><b>Assertion (A)</b>:It is dangerous to touch the neutral wire of the main supply rather than live wire.  <b>Reason (R)</b>:We can get an electric shock by touching live wire but that is not the case with neutral wire.</p>	1
20	<p><b>Assertion (A)</b>: Producers always occupy the first trophic level in every food chain.  <b>Reason (R)</b>:Producers are the green plants that serve as a source of food for all non-producers or consumers directly or indirectly.</p>	1
<b>Section-B</b>		
Question No. 21 to 26 are very short answer questions		
21	An object is placed at a distance of 30 cm in front of a convex mirror of focal length 15 cm. Write four characteristics of the image formed by the mirror.	2
22	Which part of the human brain is: (i) the main thinking part of the brain? (ii) responsible for maintaining the posture and balance of the body?	2
23	State the role played by the following in the process of digestion : (i) Enzyme trypsin (ii) Enzyme lipase	2
24	<p><b><u>Attempt either option A or B.</u></b>          A. All the variations in a species do not have equal chances of survival. Why?</p> <p style="text-align: center;"><b>OR</b></p> <p>B.A Mendelian experiment consisted of breeding pea plants bearing violet flowers with pea plants bearing white flowers. What will be the result in F1 progeny?</p>	2

25	A solution of potassium chloride, when mixed with silver nitrate solution, an insoluble white substance is formed. Write the chemical reaction involved and also mention the type of the chemical reaction?	2
26	<p><b><u>Attempt either option A or B.</u></b></p> <p>A. V-I graph for a conductor is as shown in the figure-</p>  <p>(i) What do you infer from this graph? (ii) State the law expressed here.</p> <p style="text-align: center;"><b>OR</b></p> <p>B. Name a device that you can use to maintain a potential difference between the ends of a conductor. Explain the process by which this device does so.</p>	2
<b>Section-C</b>		
Question No. 27 to 33 are short answer questions		
27	List the sequences of events that occur when a plant is exposed to unidirectional light, leading to bending of a growing shoot. Also name the hormone synthesised and the type of movement that takes place.	3
28	<p><b><u>Attempt either option A or B.</u></b></p> <p>A. The linear magnification produced by a spherical mirror is +3. Analyse this value and state the (i) type of mirror and (ii) position of the object with respect to the pole of the mirror. Draw a ray diagram to show the formation of image in this case.</p> <p style="text-align: center;"><b>OR</b></p> <p>B. A concave mirror has a focal length of 20 cm. At what distance from the mirror should a 4 cm tall object be placed so that it forms an image at a distance of 30 cm from the mirror? Also calculate the size of the image formed.</p>	3
29	(a) Bacteria and fungi are called decomposers. Why? (b) List two reasons to show that the existence of decomposers is essential in an ecosystem.	3
30	Grapes hanging on the plant do not ferment, but after being plucked from the plant can be fermented. Under what conditions do these grapes ferment? Is it a chemical or a physical change?	3
31	A current of 10 A flows through a conductor for two minutes. (i) Calculate the amount of charge passed through any area of cross section of the conductor.	3

	(ii) If the charge of an electron is $1.6 \times 10^{-19}$ C, then calculate the total number of electrons flowing.	
32	<p>What is the role of metal or reagents written on arrows in the given chemical reactions?</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>(a) </p> <p>(b) <math>\text{CH}_3\text{COOH} + \text{CH}_3\text{CH}_2\text{OH} \xrightarrow{\text{Conc. H}_2\text{SO}_4} \text{CH}_3\text{COOC}_2\text{H}_5 + \text{H}_2\text{O}</math></p> <p>(c) <math>\text{CH}_3\text{CH}_2\text{OH} \xrightarrow[\text{Heat}]{\text{Alk. KMnO}_4} \text{CH}_3\text{COOH}</math></p> </div>	3
33	List two differences in tabular form between dominant traits and recessive traits. What percentage/proportion of the plants in the F2 generation/progeny were round, in Mendel's cross between round and wrinkled pea plants?	3
<b>Section-D</b>		
Question No. 34 to 36 are long answer questions.		
34	<p><b><u>Attempt either option A or B.</u></b></p> <p>A. List three techniques that have been developed to prevent pregnancy. Which one of these techniques is not meant for males? How does the use of these techniques have a direct impact on the health and prosperity of a family?</p> <p style="text-align: center;"><b>OR</b></p> <p>B. (a) Write one main difference between asexual and sexual mode of reproduction. Which species is likely to have comparatively better chances of survival – the one reproducing asexually or the one reproducing sexually? Justify your answer.</p> <p>(b) Write names of those parts of a flower which serve the same function as the following do in the animals-</p> <p style="text-align: center;">(i) testes      (ii) sperm      (iii) ovary      (iv) egg</p>	5
35	<p><b><u>Attempt either option A or B.</u></b></p> <p>A. Differentiate between a glass slab and a glass prism. What happens when a narrow beam of (i) a monochromatic light and (ii) white light passes through (a) glass slab and (b) glass prism?</p> <p style="text-align: center;"><b>OR</b></p> <p>B. A student suffering from myopia is not able to see distinctly the</p>	5

	<p>objects placed beyond 5 m.</p> <p>(a) List two possible reasons due to which this defect of vision may have arisen. With the help of ray diagrams, explain-</p> <p>(i) Why the student is unable to see distinctly the objects placed beyond 5 m from his eyes?</p> <p>(ii) The type of the corrective lens used to restore proper vision and how this defect is corrected by the use of this lens.</p> <p>(b) If, in this case, the numerical value of the focal length of the corrective lens is 5 m, find the power of the lens as per the new Cartesian sign convention.</p>	
36	<p><b><u>Attempt either option A or B.</u></b></p> <p>A. (a) List in tabular form three chemical properties on the basis of which we can differentiate between a metal and a non-metal.</p> <p>(b) Give reasons for the following :</p> <p>(i) Most metals conduct electricity well.</p> <p>(ii) The reaction of iron (III) oxide [Fe<sub>2</sub>O<sub>3</sub>] with heated aluminium is used to join cracked machine parts.</p> <p style="text-align: center;"><b>OR</b></p> <p>B. Give reason for the following:</p> <p>(i) Hydrogen gas is not evolved when most of the metals react with nitric acid.</p> <p>(ii) Zinc oxide is considered as an amphoteric oxide.</p> <p>(iii) Metals conduct electricity.</p> <p>(iv) Aluminium is a reactive metal but is still used for packing food articles.</p> <p>(v) Calcium starts floating when water is added to it.</p>	5
<b>Section – E</b>		
Question No. 37 to 39 are case-based/data -based questions.		
37	<p>The heart is a muscular organ which is as big as our fist. Because both oxygen and carbon dioxide have to be transported by the blood, the heart has different chambers to prevent the oxygen-rich blood from mixing with the blood containing carbon dioxide. The carbon dioxide-rich blood has to reach the lungs for the carbon dioxide to be removed, and the oxygenated blood from the lungs has to be brought back to the heart. This oxygen-rich blood is then pumped to the rest of the body.</p> <p>A. Name the vein which brings blood to left atrium from lungs. (1)</p> <p>B. Mention any two components of blood. (1)</p> <p><b><u>Attempt either subpart C or D.</u></b> (2)</p> <p>C. Give reasons:</p> <p>(a) Ventricles have thicker muscular walls than atria.</p> <p>(b) Veins have valves whereas arteries do not.</p> <p style="text-align: center;"><b>OR</b></p> <p>D. "Blood circulation in fishes is different from the blood</p>	4

	circulation in human beings". Justify the statement.	
38	<p>The strength of an acid or an alkali can be tested by using a scale called the pH scale (0-14) which gives the measure of hydrogen ion concentration in a solution. A neutral solution has a pH of exactly 7, while an acidic solution has a pH less than 7 and a basic solution a pH more than 7. Living beings carry out their metabolic activities within an optimal pH range.</p> <p>A. You have three solutions – A, B and C having a pH of 6, 2 and 9 respectively. Arrange these solutions in increasing order of hydrogen ion concentration. (1)</p> <p>B. Which of the three is most acidic? (1)</p> <p><b><u>Attempt either subpart C or D.</u></b> (2)</p> <p>C. (a)What happens to the hydrogen ion concentration in A as it is diluted? (b)Write the pH range in which human body works?</p> <p><b>OR</b></p> <p>D. If someone is suffering from a stomach problem called acidity, why is a solution of baking soda offered as a remedy?</p>	4
39	<p>We considered the direction of the current and that of the magnetic field perpendicular to each other and found that the force is perpendicular to both of them. The three directions can be illustrated through a simple rule, called Fleming's left-hand rule.</p> <p>A. State Fleming's left-hand rule. (1)</p> <p>B. An electron enters a magnetic field at right angles to it, as shown in the figure. (1)</p> <p>What will be the direction of force acting on the electron?</p> <p><b><u>Attempt either subpart C or D.</u></b> (2)</p> <p>C. (a)Name any two devices that use current-carrying conductors and magnetic fields. (b) Why don't two magnetic field lines intersect each other?</p> <p><b>OR</b></p> <p>D. A current through a horizontal power line flows in east to west direction.</p> <p>(a)What is the direction of magnetic field at a point directly below it and at a point directly above it? (b)State the law which is being applied here.</p>	4

