



TECHNO INDIA GROUP PUBLIC SCHOOL

MOCK TEST-II

CLASS-X

Q.P. Code **086**

Roll No.

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Candidates must write the code on the title page of the answer-book.

- Please check that this question paper contains 14 printed pages.
- QP Code given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- Please check that this question paper contains 39 questions.
- Please write down the Serial Number of the question before attempting it.
- 15 minutes time has been allotted to read this question paper.

SCIENCE

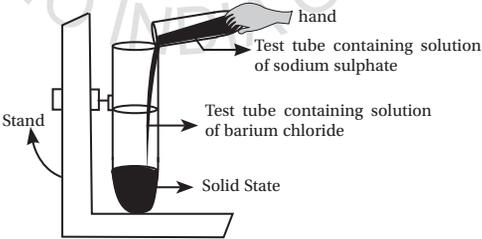
Time allowed : 3 hours

Maximum Marks : 80

General Instruction:

- (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: B

17.	<p>In order to balance the following chemical equation, the values of a, b, c and d respectively are :</p> $a \text{Fe(s)} + b \text{H}_2\text{O(g)} \longrightarrow c \text{Fe}_3\text{O}_4\text{(s)} + d \text{H}_2\text{(g)}$ <p>(A) 3, 2, 4, 1 (B) 3, 2, 4, 2 (C) 3, 4, 1, 4 (D) 3, 4, 3, 4</p>	[1]														
18.	<p>Four statements about the reactions of oxides with dilute hydrochloric acid and aqueous sodium hydroxide are listed.</p> <p>I. Aluminium oxide reacts with both dilute hydrochloric acid and aqueous sodium hydroxide. II. Calcium oxide reacts with dilute hydrochloric acid and aqueous sodium hydroxide. III. Zinc oxide reacts with both dilute hydrochloric acid and aqueous sodium hydroxide. IV. Sulphur dioxide does not react with either dilute hydrochloric acid or aqueous sodium hydrochloride.</p> <p>Which statements are correct ?</p> <p>(A) I & II (B) I & III (C) II & IV (D) III & IV.</p>	[1]														
19.	<p>An iron nail is added to each of the two test tubes 'P' and 'Q' containing aqueous copper (II) sulphate, and aqueous silver nitrate respectively. Which of the following observation is correct ?</p> <p>(A) In test tube 'P' iron nail is coated with a blue coating and in test-tube 'Q'. There is no reaction (B) Iron nail is coated with a brown coating in a test tube 'P' and silver coating in test tube 'Q' (C) There is no reaction in either of the test tubes 'P' or 'Q'. (D) There is no reaction in test-tube 'P' but a silver coating on iron nail is seen in test tube 'Q'.</p>	[1]														
20.	<p>Identify the product which represents the solid state in the above reaction.</p>  <p>(A) Barium chloride (B) Sodium chloride (C) Barium sulphate (D) Sodium sulphate</p>	[1]														
21.	<p>Which of the following oxide(s) is/are soluble in water to form alkalies ?</p> <p>(i) Na_2O (ii) SO_2 (iii) K_2O (iv) NO_2</p> <p>(A) (i) & (iii) (B) (i) only (C) (ii) & (iv) only (D) (iii) only</p>	[1]														
22.	<p>The image shows the pH values of the solution on a pH scale :</p> <table border="1" data-bbox="160 1692 945 1739"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td> </tr> </table> <p style="text-align: center;"> ↑ ↑ ↑ ↑ A B C D </p> <p>Which solution(s) are acidic in nature ?</p> <p>(A) B & C (B) A & B (C) C & D (D) A & D</p>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	[1]
1	2	3	4	5	6	7	8	9	10	11	12	13	14			

23.	Structural formula of ethyne is :	[1]
	(A) $\text{H}-\text{C}\equiv\text{C}-\text{H}$ (B) $\text{CH}_3-\text{C}\equiv\text{C}-\text{H}$ (C) $\begin{array}{c} \text{H} & & \text{H} \\ & \diagdown & / \\ & \text{C} = & \text{C} \\ & / & \diagdown \\ \text{H} & & \text{H} \end{array}$ (D) $\begin{array}{c} \text{H} & & \text{H} \\ & \diagdown & / \\ \text{H}-\text{C} & - & \text{C} \\ & / & \diagdown \\ \text{H} & & \text{H} \end{array}$	

Assertion and Reason: (Q. No. 24)

Directions: Read the following questions and choose any one of the following four responses.

A: Assertion and Reason both are correct and Reason is the correct explanation of Assertion.

B: Assertion and Reason both are correct and Reason is not the correct explanation of Assertion.

C: Assertion is correct but Reason is wrong.

D: Assertion is wrong but Reason is correct.

24.	Assertion (A): $\text{MnO}_2 + 4\text{HCl} \longrightarrow \text{MnCl}_2 + \text{Cl}_2 + 2\text{H}_2\text{O}$ is a redox reaction. Reason (R): MnO_2 oxidises HCl to Cl_2 and gets reduced to MnCl_2 .	[1]
	(A) A (B) B (C) C (D) D	

25.	“We need to balance a skeletal chemical equation.” Give reason to justify the statement.	[2]
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26.	(a) Why does carbon show catenation to maximum extent ? List two reasons. (b) Draw electron dot structures of (i) ethane and (ii) ethene Or Ethanol ($\text{C}_2\text{H}_5\text{OH}$) is heated with alkaline potassium permanganate to give a compound X. $\text{C}_2\text{H}_5\text{OH} \xrightarrow[\text{heat}]{\text{alkaline KMnO}_4} \text{'X'}$ (a) How many carbon atoms will compound 'X' contain ? (b) Compound 'X' is now reacted with ethanol in the presence of an acid catalyst to give a compound 'Y'. $\text{'X'} + \text{C}_2\text{H}_5\text{OH} \xrightarrow{\text{acid}} \text{'Y'}$ (i) Name the type of compound formed in the above reaction with respect to the functional group it contains. (ii) State one characteristics property of compound 'Y'. (iii) State one use of compound 'Y'.	[3]
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27.	What are covalent compounds? How are they different from ionic compounds? List their three characteristics properties.	[3]
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28.	The table given below, in which samples of four metals A, B, C and D were taken and added to the following solution one by one. The results obtained have been tabulated as follows :	[4]																									
	<table border="1"> <thead> <tr> <th>Metal</th> <th>Iron (II) Sulphate</th> <th>Copper (II) Sulphate</th> <th>Zinc Sulphate</th> <th>Silver Nitrate</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>No reaction</td> <td>Reddish brown deposit</td> <td></td> <td></td> </tr> <tr> <td>B</td> <td>Grey deposit</td> <td></td> <td>No reaction</td> <td></td> </tr> <tr> <td>C</td> <td>No reaction</td> <td>No reaction</td> <td>No reaction</td> <td>White shining deposit</td> </tr> <tr> <td>D</td> <td>No reaction</td> <td>No reaction</td> <td>No reaction</td> <td>No reaction</td> </tr> </tbody> </table>	Metal	Iron (II) Sulphate	Copper (II) Sulphate	Zinc Sulphate	Silver Nitrate	A	No reaction	Reddish brown deposit			B	Grey deposit		No reaction		C	No reaction	No reaction	No reaction	White shining deposit	D	No reaction	No reaction	No reaction	No reaction	
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	(a) Which is the most reactive metal in the given table ? (i) A (ii) B (iii) C	[5]
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	<p>Give reason to justify your selection.</p> <p>(b) What would you observe when B is added to a solution of copper (II) sulphate and why ?</p> <p style="text-align: center;">Or</p> <p>Name two metals which will displace hydrogen from dilute acids and two metals which will not.</p> <p>(c) Which of the above solution can be easily stored in a container made up of any of these metals? Give a reason to justify your answer.</p>	
29.	<p>(a) Define olfactory indicators. Name two substances which can be used as olfactory indicators</p> <p>(b) What is the pH scale ? How can you know, if the given sample is acidic, basic or neutral from its pH value ?</p> <p>(c) Give chemical name; formula and the use of Plaster of Paris.</p> <p style="text-align: center;">Or</p> <p>(a) Write the chemical equation for production of washing soda from sodium carbonate.</p>	[5]

SECTION: C

30.	<p>Focal length of a convex lens is maximum for the colour of light is —</p> <p>(A) Red (B) Blue (C) Green (D) Violet</p>	[1]
31.	<p>The emf in an AC generator can be increased</p> <p>(A) By increasing the speed of armature</p> <p>(B) By increasing the magnetic field of the electromagnet.</p> <p>(C) By increasing the number of turns of armature coil.</p> <p>(D) All of the above.</p>	[1]

Assertion and Reason :

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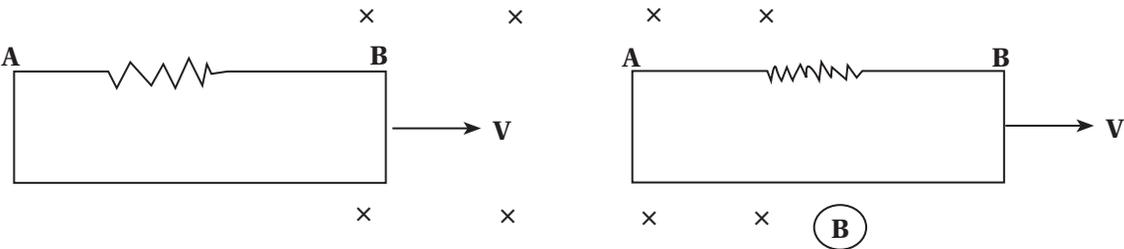
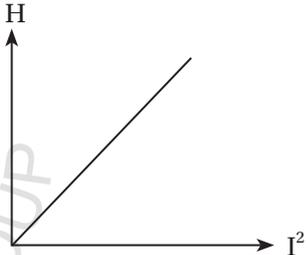
C: Assertion is correct but Reason is wrong.

D: Assertion is wrong but Reason is correct.

32.	<p>Assertion (A): When the temperature of a conductor increases, the resistance of the conductor is also increases.</p> <p>Reason (R) : The relaxation time of electrons decreases with the increase of temperature.</p> <p>(A) A (B) B (C) C (D) D</p>	[1]
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Case Based Questions :

33.	<p>The (V - I) graph for two conductor (A, B) shown in figure. If conductors are identical in shape and size but different material, one is copper and another one is iron. Identify the material for A and B and explain.</p> <div style="text-align: center;"> </div>	[2]
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34.	<p>Show the direction of induced current in the circuit AB is when</p> <p>(a) Pulled inside the field</p> <p>(b) Pulled outside the field</p> 	[2]
35.	<p>A concave mirror forms a real image 30 cm from the mirror when an object is placed 20 cm from it.</p> <p>(a) Draw a ray diagram showing the formation of the image.</p> <p>(b) Calculate the focal length of the mirror.</p> <p>(c) Identify the position of the object (between F and C or at C or beyond C)</p>	[3]
36.	<p>The graph shows the variation of heat produced (H) with the square of current (I^2) in a resistor.</p> <p>(a) Write the relation of H and I</p> <p>(b) If 2A of current produces 40 J of heat, how much heat will be produced. If current becomes double</p> 	[3]
37.	<p>A current carrying conductor produces a magnetic field 4×10^{-5} T at a distance of 10 cm from it.</p> <p>(a) Draw the diagram showing magnetic field lines around the straight conductor.</p> <p>(b) Calculate the current in the wire.</p>	[2+2]
38.	<p>(a) Explain why the power of the eye lens increases when viewing a near object.</p> <p>(b) (i) A student has a near point of 50 cm. What type of lens is required to correct this defect?</p> <p>(ii) Find the power of the correcting lens if the normal near point is 25 cm.</p>	[4]
39.	<p>(a) Draw a ray diagram to show the formation of an image by a concave mirror when the object is placed between focus and centre of curvature. State the nature, size and position of image formed.</p> <p>(b) Can a convex mirror forms a real image? Explain with a ray diagram.</p>	[2+2]