

BYJU'S Full Test for Board Term I
(CBSE Grade 12)
CHEMISTRY QUESTIONS

Time: 90 Minutes

Max Marks: 35

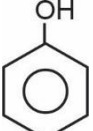

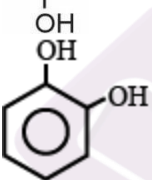
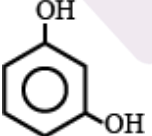

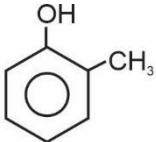
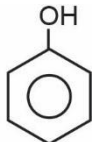
General Instructions:

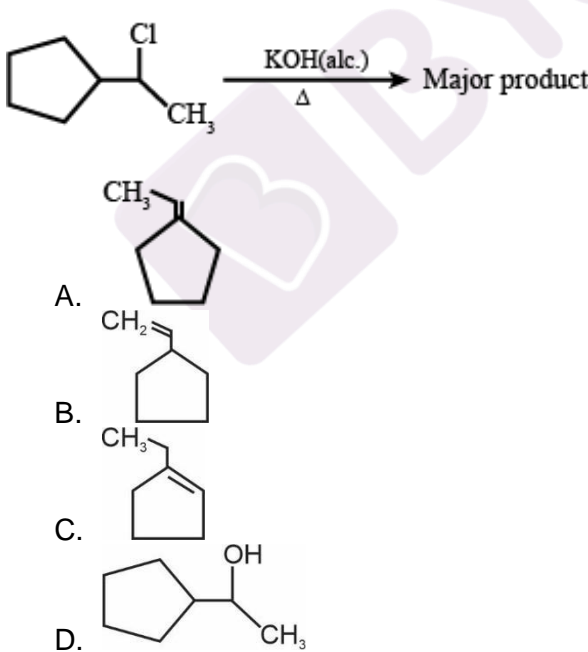
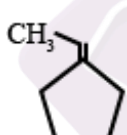
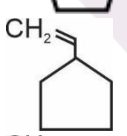
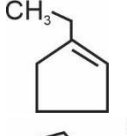
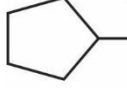
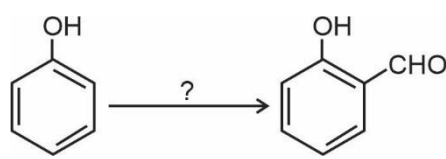
1. The Question Paper contains three sections.
2. Section A has 25 questions. Attempt any 20 questions.
3. Section B has 24 questions. Attempt any 20 questions.
4. Section C has 6 questions. Attempt any 5 questions.
5. All questions carry equal marks.
6. There is no negative marking.


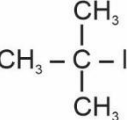
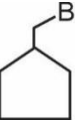

Section – A

Section - A consists of 25 multiple choice questions with overall choice to attempt any 20 questions. In case more than desirable number of questions are attempted, ONLY first 20 will be considered for evaluation.

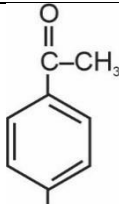
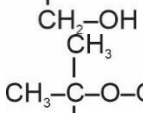
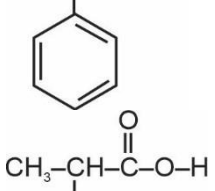
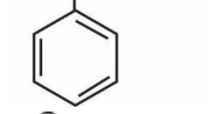
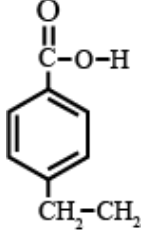
Q1	Which of the following is an amorphous solid? A. Graphite B. Ice C. NaCl D. Glass	(0.77)
Q2	Amalgam of mercury with sodium is a solution of A. Liquid into solid B. Solid into liquid C. Solid into solid D. Liquid into liquid	(0.77)
Q3	Which of the following hydrides is thermally most stable? A. SbH_3 B. AsH_3 C. NH_3 D. PH_3	(0.77)

Q4	<p>Which of the following haloalkanes has the highest boiling point?</p> <p>A. $\text{CH}_3\text{CH}_2\text{CH}_2\text{Cl}$ B. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{Cl}$ $\text{CH}_3 - \text{CH} - \text{CH}_2 - \text{Cl}$ \quad $\quad \text{CH}_3$ C. $\quad \quad \quad \text{CH}_3$ $\quad \quad \quad \text{CH}_3$ $\quad \quad \quad$ $\text{CH}_3 - \text{C} - \text{Cl}$ $\quad \quad$ $\quad \quad \text{CH}_3$ D.</p>	(0.77)
Q5	<p>The incorrect statement regarding $\text{S}_{\text{N}}1$ reaction is</p> <p>A. It follows first order kinetics B. It is favoured by polar protic solvent C. It takes place through single step concerted mechanism D. Benzylic halides generally react through this mechanism</p>	(0.77)
Q6	<p>Which of the following compounds will be most soluble in water?</p> <p>A. </p> <p>B. </p> <p>C. </p> <p>D. </p>	(0.77)
Q7	<p>The correct order of acidic strength of the following compounds is</p> <p style="text-align: center;">  (A) </p> <p style="text-align: center;">  (B) </p> <p style="text-align: center;">  (C) </p> <p>A. $\text{A} > \text{B} > \text{C}$ B. $\text{C} > \text{B} > \text{A}$ C. $\text{A} > \text{C} > \text{B}$ D. $\text{B} > \text{C} > \text{A}$</p>	(0.77)

Q8	Which of the following amino acids is optically inactive? A. Valine B. Glycine C. Leucine D. Arginine	(0.77)
Q9	Which of the following is not a stoichiometric defect? A. Vacancy defect B. Interstitial defect C. Dislocation defect D. Metal excess defect	(0.77)
Q10	Which of the following gas is produced when zinc is treated with concentrated nitric acid? A. NO B. N ₂ O C. NO ₂ D. N ₂ O ₃	(0.77)
Q11	The major product obtained in the following reaction is  <p>  A.  B.  C.  D. </p>	(0.77)
Q12	The suitable reagent for the following conversion is 	(0.77)

	<p>A. $\text{KMnO}_4/\text{H}_3\text{O}^+$ B. $\text{NaOH}, \text{CO}_2/\text{H}_2\text{O}$ C. $\text{CHCl}_3, \text{NaOH}(\text{aq})/\text{H}_3\text{O}^+$ D. Zn/heat</p>	
Q13	<p>An element crystallizes into FCC structure. If the atomic mass of element is 12.04 g mol^{-1} and the edge length is 400 pm, then the density of the unit cell is [Take Avogadro's number = 6.02×10^{23}]</p> <p>A. 2.50 g cm^{-3} B. 1.25 g cm^{-3} C. 3.15 g cm^{-3} D. 0.75 g cm^{-3}</p>	(0.77)
Q14	<p>Which of the following relation is not true with respect to positive deviation from Raoult's law?</p> <p>A. $\Delta G_{\text{mix}} < 0$ B. $\Delta H_{\text{mix}} > 0$ C. $\Delta S_{\text{mix}} < 0$ D. $\Delta V_{\text{mix}} > 0$</p>	(0.77)
Q15	<p>The maximum oxidation state shown by nitrogen is</p> <p>A. -3 B. $+3$ C. $+5$ D. $+1$</p>	(0.77)
Q16	<p>Which of the following compounds is least reactive toward $\text{S}_{\text{N}}2$ mechanism?</p> <p>A. </p> <p>B. </p> <p>C. </p> <p>D. </p>	(0.77)

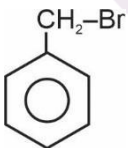
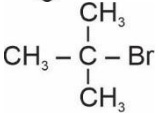
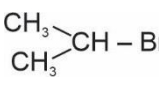
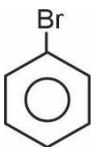
Q17	Which of the following is/are reducing sugar(s)? A. Galactose B. Fructose C. Glucose D. All of these	(0.77)
Q18	The IUPAC name of the following compound is $\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 - \text{CH}_2 - \text{C} - \text{CH}_2 - \text{OH} \\ \\ \text{CH}_2\text{Cl} \end{array}$ A. 1-Chloro-2-methyl-2-ethylbutan-3-ol B. 2-(Chloromethyl)-2-methylbutan-1-ol C. 3-(Chloromethyl)-3-methylbutan-1-ol D. 1-Chloro-2-ethyl-2-methylpropan-3-ol	(0.77)
Q19	20 g of a substance is dissolved in 100 g water which lowers the freezing point by 1.5°C. What is the molecular mass of the substance? [K _f of water = 1.86] A. 124 g mol ⁻¹ B. 290 g mol ⁻¹ C. 248 g mol ⁻¹ D. 175 g mol ⁻¹	(0.77)
Q20	The brown coloured substance obtained in brown ring test is A. [Fe(H ₂ O) ₅ (NO)] ²⁺ B. [Fe(H ₂ O) ₆] ¹⁺ C. [Fe(H ₂ O) ₄ (NO) ₂] ³⁺ D. [Fe(H ₂ O) ₃ (NO)] ¹⁺	(0.77)
Q21	Which of the following is an ambident nucleophile? A. Cl ⁻ B. OH ⁻ C. OCH ₃ ⁻ D. CN ⁻	(0.77)
Q22	Identify the structure of 'A' in the following reaction $\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 - \text{CH} \\ \\ \text{C}_6\text{H}_5 \end{array} \xrightarrow{\text{O}_2} \text{A} \xrightarrow[\text{H}_2\text{O}]{\text{H}^+} \begin{array}{c} \text{OH} \\ \\ \text{C}_6\text{H}_5 \end{array} + \text{CH}_3\text{COCH}_3$	(0.77)

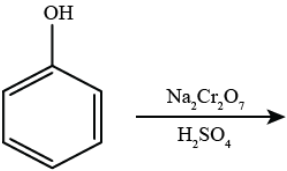
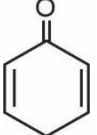
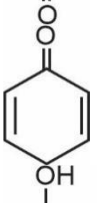
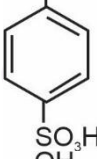
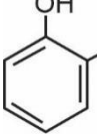
	<p style="text-align: center;">  <chem>NC(=O)Oc1ccc(N)cc1</chem> </p> <p>A.  <chem>COc1ccc(CO)cc1</chem></p> <p>B.  <chem>CC(=O)Oc1ccc(N)cc1</chem></p> <p>C.  <chem>CC(=O)Oc1ccc(N)cc1</chem></p> <p>D.  <chem>CCc1ccc(C(=O)O)cc1</chem></p>	
Q23	<p>Which of the following is an essential amino acid?</p> <p>A. Glutamine B. Alanine C. Methionine D. Aspartic acid</p>	(0.77)
Q24	<p>The product obtained when sucrose is made to react with conc. H_2SO_4 is</p> <p>A. S B. O_2 C. H_2 D. C</p>	(0.77)
Q25	<p>When toluene is made to react with chlorine in presence of sunlight, the product obtained is</p> <p>A. o-Chlorotoluene B. p-Chlorotoluene C. 2, 4,6-Chlorotoluene D. Benzyl chloride</p>	(0.77)

Section – B

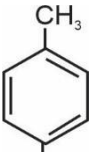
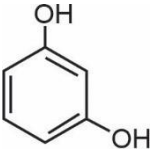
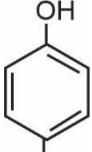
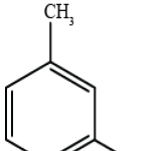
Section – B consists of 24 multiple choice questions with overall choice to attempt any 20 questions. In case more than desirable number of questions are attempted, ONLY first 20 will be considered for evaluation.

Q26	<p>Which of the following oxides is neutral?</p> <p>A. SO_2 B. NO C. CaO D. Al_2O_3</p>	(0.77)
Q27	<p>When 1-butyl bromide is made to react with Na metal in presence of dry ether, the major product obtained is</p> <p>A. $\begin{array}{c} \text{CH}_3 \quad \text{CH}_3 \\ \quad \\ \text{CH}_3 - \text{C} - \text{C} - \text{CH}_3 \\ \quad \\ \text{CH}_3 \quad \text{CH}_3 \end{array}$</p> <p>B. $\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 - \text{C} - \text{CH}_2 - \text{CH} - \text{CH}_3 \\ \quad \\ \text{CH}_3 \quad \text{CH}_3 \end{array}$</p> <p>C. $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_3$</p> <p>D. $\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{C} - \text{CH}_3 \\ \\ \text{CH}_3 \end{array}$</p>	(0.77)
Q28	<p>Which of the following base is not present in RNA?</p> <p>A. Thymine B. Guanine C. Adenine D. Cytosine</p>	(0.77)
Q29	<p>Grignard reagent is prepared by the reaction between</p> <p>A. Magnesium and aliphatic alcohols B. Zinc and alkyl halide C. Magnesium and alkyl halide D. Sodium and ethyne</p>	(0.77)

Q30	Which of the following product can be obtained through Kolbe's reaction of phenol? A. Salicylaldehyde B. Salicylic acid C. Benzoic acid D. Phthalic acid	(0.77)
Q31	The most unsymmetrical crystal system is A. Cubic B. Monoclinic C. Tetragonal D. Triclinic	(0.77)
Q32	Calculate the vapour pressure of water when 50 g of urea (NH_2CONH_2) is present in 900 g of solution. (Vapour pressure of pure water at 298 K is 23.8 mm Hg) A. 23.3 mm Hg B. 50.1 mm Hg C. 38.5 mm Hg D. 42.3 mm Hg	(0.77)
Q33	XeF_2 is isostructural to A. H_2O B. NO_2 C. I_3^- D. O_3	(0.77)
Q34	Which of the following is a primary halide? A.  B.  C.  D. 	(0.77)

Q35	<p>Which of the following is an ideal solution?</p> <ul style="list-style-type: none">A. Ethanol and waterB. n-hexane and n-heptaneC. Acetone and ethanolD. Phenol and aniline	(0.77)
Q36	<p>Complete the following reaction :</p>  <p>The reaction shows phenol (a benzene ring with an OH group) reacting with $\text{Na}_2\text{Cr}_2\text{O}_7$ and H_2SO_4 to produce one of the following products:</p> <ul style="list-style-type: none">A. B. C. D. 	(0.77)
Q37	<p>The products obtained upon hydrolysis of XeF_4 is</p> <ul style="list-style-type: none">A. $\text{XeO}_3 + \text{HF}$B. $\text{Xe} + \text{HF} + \text{O}_2$C. $\text{Xe} + \text{XeO}_3 + \text{HF} + \text{O}_2$D. $\text{XeOF}_4 + \text{HF}$	(0.77)

Q38	The major product obtained when glucose is heated with HI is A. n-Hexane B. Gluconic acid C. Glucose cyanohydrin D. Saccharic acid	(0.77)
Q39	When ethyl bromide is treated with sodium cyanide, then the product obtained is A. Ethyl cyanide B. Ethyl isocyanide C. Methyl cyanide D. Methyl isocyanide	(0.77)
Q40	Methyl magnesium bromide is made to react with acetone in the presence of dry ether, a compound X is obtained which is further subjected to hydrolysis to give compound Y. The compound Y is A. Primary alcohol B. Secondary alcohol C. Tertiary alcohol D. Aromatic alcohol	(0.77)
Q41	Aluminium crystallizes into FCC structure. If the atomic radius of the metal is 150 pm, then the edge length of the unit cell of metal is (approximately) A. 318 pm B. 424 pm C. 300 pm D. 212 pm	(0.77)
Q42	What is the covalency of nitrogen in N_2O_5 ? A. 2 B. 3 C. 4 D. 5	(0.77)

Q43	<p>The correct structure of quinol is</p> <div style="text-align: center;">  <p>A. </p> <p>B. </p> <p>C. </p> <p>D.</p> </div>	(0.77)
Q44	<p>Which of the following is not formed when Cl_2 is made to react with hot and concentrated NaOH?</p> <p>A. NaCl B. NaOCl C. NaClO_3 D. H_2O</p>	(0.77)
Q45	<p>Given below are two statements labelled as Assertion (A) and Reason (R).</p> <p>Assertion (A) : Crystalline solids are anisotropic in nature. Reason (R) : They have different arrangement of particles in different directions.</p> <p>Select the most appropriate answer from the options 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 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.</p>	(0.77)

Q46	<p>Given below are two statements labelled as Assertion (A) and Reason (R).</p> <p>Assertion (A) : Bond enthalpy of fluorine molecule is lower than chlorine molecule.</p> <p>Reason (R) : Fluorine is the most electronegative element.</p> <p>Select the most appropriate answer from the options 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 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.</p>	(0.77)
Q47	<p>Given below are two statements labelled as Assertion (A) and Reason (R).</p> <p>Assertion (A) : Ortho-nitrophenol has lower boiling point than p-nitrophenol.</p> <p>Reason (R) : p-nitrophenol forms intramolecular H-bonding.</p> <p>Select the most appropriate answer from the options 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 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.</p>	(0.77)
Q48	<p>Given below are two statements labelled as Assertion (A) and Reason (R).</p> <p>Assertion (A) : Haloalkanes are highly soluble in water.</p> <p>Reason (R) : The new attractions between haloalkanes and water molecules are weaker than the H-bonding of water.</p> <p>Select the most appropriate answer from the options 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 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.</p>	(0.77)

Q49	<p>Given below are two statements labelled as Assertion (A) and Reason (R).</p> <p>Assertion (A) : α-amino acids exist as Zwitter ions.</p> <p>Reason (R) : α-amino acids are the building blocks of proteins.</p> <p>Select the most appropriate answer from the options 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 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.</p>	(0.77)
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Section – C

Section - C consists of 6 multiple choice questions with an overall choice to attempt any 5. In case more than desirable number of questions are attempted, ONLY first 5 will be considered for evaluation.

Q50	<p>Match the following :</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center; vertical-align: top;">I</td> <td style="text-align: center; vertical-align: top;">II</td> </tr> <tr> <td>(i) XeF_4</td> <td>(A) Distorted octahedral</td> </tr> <tr> <td>(ii) XeOF_4</td> <td>(B) Square planer</td> </tr> <tr> <td>(iii) XeF_6</td> <td>(C) Pyramidal</td> </tr> <tr> <td>(iv) XeO_3</td> <td>(D) Square pyramidal</td> </tr> <tr> <td>(v) XeO_2F_2</td> <td></td> </tr> </table> <p>Which of the following is best matched option.</p> <p>A. (i)-(B), (ii)-(D), (v)-(A), (iv)-(C) B. (i)-(A), (ii)-(C), (iii)-(B), (iv)-(D) C. (i)-(C), (v)-(B), (iii)-(A), (iv)-(D) D. (i)-(B), (ii)-(D), (iii)-(A), (iv)-(C)</p>	I	II	(i) XeF_4	(A) Distorted octahedral	(ii) XeOF_4	(B) Square planer	(iii) XeF_6	(C) Pyramidal	(iv) XeO_3	(D) Square pyramidal	(v) XeO_2F_2		(0.77)
I	II													
(i) XeF_4	(A) Distorted octahedral													
(ii) XeOF_4	(B) Square planer													
(iii) XeF_6	(C) Pyramidal													
(iv) XeO_3	(D) Square pyramidal													
(v) XeO_2F_2														
Q51	<p>Which of the following analogies is incorrect?</p> <p>A. CsCl : Schottky defect : : AgCl : Frenkel Defect B. Hexagonal closed packing : ABAB ... : : Cubic closed packing : ABCABC.. C. SiC : Molecular solid : : MgO : Ionic solid D. Crystalline solid : Long range order : : Amorphous solid : Short range order</p>	(0.77)												

Q52	<p>Complete the analogy :</p> <p>Protein : A :: Nucleic acids : B</p> <p>A. A : Glycosidic linkage :: B : Phosphodiester linkage B. A : Peptide linkage :: B :: Phosphodiester linkage C. A : Peptide linkage :: B : Glycosidic linkage D. A : Glycosidic linkage :: Peptide linkage</p>	(0.77)
Q53	<p>CASE1: Read the passage given below and answer the following questions 53-55.</p> <p>When a non-volatile solute is added to a solvent, the boiling point of the solutions is always higher than that of the pure solvent. The deviation of boiling point depends on the number of solute molecules rather than their nature.</p> <p>If T_b^0 be the boiling point of pure solvent and T_b be the boiling point of solution. Then, the increase in the boiling point $\Delta T_b = T_b - T_b^0$ is known as elevation of boiling point.</p> <p>For dilute solutions, $\Delta T_b = K_b m$ (Where m = molality of the solutions and K_b = molal elevation constant)</p> <p>The unit of molal elevation constant is</p> <p>A. $K \text{ kg mol}^{-1}$ B. $K^{-1} \text{ kg mol}^{-1}$ C. $K \text{ kg mol}$ D. $K^{-1} \text{ kg}^{-1} \text{ mol}$</p>	(0.77)
Q54	<p>The correct relation between the molar mass of solute (M_2) and the elevation in boiling point is given by [w_2 = mass of solute taken] [w_1 = mass of solvent taken]</p> <p>A. $M_2 = \frac{\Delta T_b \times w_1}{1000 \times w_2 \times K_b}$ B. $M_2 = \frac{1000 \times w_2 \times K_b}{\Delta T_b \times w_1}$ C. $M_2 = \frac{\Delta T_b \times w_2}{1000 \times w_1 \times K_b}$ D. $M_2 = \frac{1000 \times w_1 \times K_b}{\Delta T_b \times w_2}$</p>	(0.77)
Q55	<p>The boiling point of benzene is 353.25 K. When 18 g of glucose, $C_6H_{12}O_6$ was dissolved in 90 g benzene, the boiling point is raised to 354.05 K. Calculate the molal elevation constant for benzene.</p> <p>A. 0.72 B. 2.18 C. 1.44 D. 1.24</p>	(0.77)