

CUET UG 2023 Chemistry Question Paper PDF (Jun 13, 2023) (Shift 3)

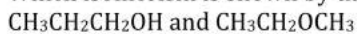
Q1. Which of the following statements is not applicable to chemisorption?

- (A) It is independent of temperature
- (B) It is highly specific
- (C) It is slow
- (D) It is irreversible

Choose the **correct** answer from the options given below:

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

Q2. Which isomerism is shown by the following pairs?



- (a) Position isomerism
- (b) Functional isomerism
- (c) Structural isomerism
- (d) Chain isomerism

Q3. Which will form the most stable complex?

- (a) NCS
- (b) CN^-
- (c) H_2O
- (d) $\text{C}_2\text{O}_4^{2-}$

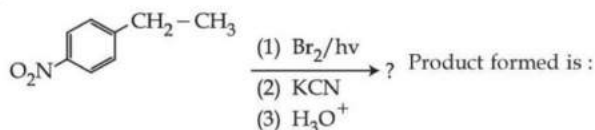
Q4. How many Cr-O bonds in dichromate ions are of the same bond length and are in resonance?

- (a) 8
- (b) 6
- (c) 3
- (d) 4

Q5. If time taken for a first order reaction to get 90% complete is 24 min, its $t_{99.9\%}$ will be:

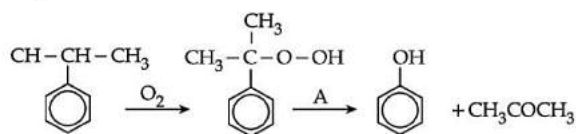
- (a) 240 min
- (b) 48 min
- (c) 120 min
- (d) 72 min

Q6.



- (a)
- (b)
- (c)
- (d)

Q7. 'A' in the following reaction is:



- (a) NaOH (aq.)
- (b) NaOH (alcoholic)
- (c) KMnO_4 alkaline
- (d) H_3O^+

Q8. In process of froth floatation, which is used for the removing gangue from sulphide ores. Depressant used is:

- (a) Xanthates
- (b) Cresols
- (c) NaCN
- (d) Aniline

Q9. Zeolite can be used to soften hard water when:

- (a) Ca^{2+} or Mg^{2+} ion in zeolite are replaced by Na^+ ions in hard water
- (b) Ca^{2+} ions in zeolite are replaced by Mg^{2+} ions in hard water
- (c) Na^+ ions in zeolite are replaced by Ca^{2+} and Mg^{2+} ions in hard water
- (d) None is correct

Q10. Indium is mainly refined by:

- (a) Vapour phase refining
- (b) Distillation
- (c) Zone refining
- (d) Liquation

Q11. Match the Items **List-I** and **List-II**:

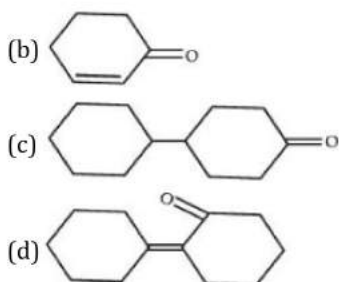
List-I		List-II	
(A)	Instantaneous Rate	(I)	rate constant
(B)	Average Rate	(II)	rate law
(C)	Mathematical expression for rate of reaction in terms of concentration of reactants	(III)	Short interval of time
(D)	Rate of reaction for zero order reaction is equal to	(IV)	long direction of time

Choose the **correct** answer from the options given below:

- (a) (A)-(IV), (B)-(II), (C)-(I), (D)-(III)
- (b) (A)-(I), (B)-(II), (C)-(III), (D)-(IV)
- (c) (A)-(II), (B)-(I), (C)-(IV), (D)-(III)
- (d) (A)-(III), (B)-(IV), (C)-(II), (D)-(I)

Q12. What will be the product formed when cyclohexanone undergoes Aldol condensation?





Q13. In corrosion:

- (A) A metal is oxidised by loss of electrons to oxygen
 (B) It is an Electrochemical phenomenon
 (C) The object under corrosion behaves as anode
 (D) Coating the metal with Zn can save iron object from corrosion

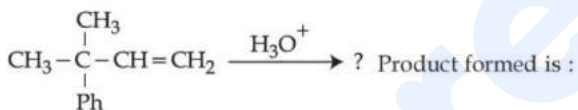
Choose the **correct** answer from the options given below:

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

Q14. Excess of Lead from human body can be removed by using which of the following chelating agents?

- (a) D -Penicillamine
 (b) DMG
 (c) Desferrioxime B
 (d) EDTA

Q15.



- (a)
- (b)
- (c)
- (d)

Q16. Vapour pressure of an aqueous solution of non-volatile solute which boils at 101.56°C at 25°C will be (V.P. of pure water at 25°C is 200 mmHg and K_b for water is 0.52 kg mol⁻¹)

- (a) 198.98 mmHg
 (b) 189.8 mmHg
 (c) 179.6 mmHg
 (d) 184.7 mmHg

Q17. In a reaction A and B reacts to form product. The initial rate of reaction (r_0) was determined using different initial concentration of A and B.

A/mol L ⁻¹	0.10	0.10	0.20
B/mol L ⁻¹	0.30	0.10	0.30
$R_0/\text{mol L}^{-1}\text{s}^{-1}$	6.81×10^{-4}	2.27×10^{-4}	13.62×10^{-4}

What is the initial rate of reaction (r_0) when critical concentration of A and B is 0.50 mol/L and 0.50 mol/L respectively.

- (a) $56.75 \times 10^{-4} \text{ mol L}^{-1}\text{s}^{-1}$
 (b) $5.675 \times 10^{-4} \text{ mol L}^{-1}\text{s}^{-1}$
 (c) $21.67 \times 10^{-4} \text{ mol L}^{-1}\text{s}^{-1}$
 (d) $2.167 \times 10^{-4} \text{ mol L}^{-1}\text{s}^{-1}$

Q18. The electronic conductance depends on.

- (A) The nature and structure of the metal
 (B) Composition of metallic conductor
 (C) The number of valence electrons per atom
 (D) Temperature
 (E) Number of ions

Choose the **correct** answer from the options given below:

- (a) (A), (B) and (C) only
 (b) (A), (C) and (D) only
 (c) (C), (D) and (E) only
 (d) (A), (B) and (E) only

Q19. In which of the following actinoid elements 6d subshell is vacant?

- (a) Pa, Protactinium
 (b) Np, Neptunium
 (c) Lr, Lawrencium
 (d) Pu, Plutonium

Q20. Identify the correct relation between the molar mass of solute and Ebullioscopic constant.

- (a) $M_2 = \frac{1000 \times w_2 \times w_1}{\Delta T_b \times K_b}$
 (b) $\Delta T_b = \frac{1000 \times w_2 \times K_b \times M_2}{w_1}$
 (c) $M_2 = \frac{1000 \times w_2 \times K_b}{\Delta T_b \times w_1}$
 (d) $M_2 = \frac{1000 \times w_1 \times K_b}{\Delta T_b \times w_2}$

Q21.



Product E is:

- (a)
- (b) $\text{CH}_3\text{CH}_2 - \text{NH}_2$
- (c)
- (d)

Q22. Match List-I with List-II:

List-I		List-II	
(A)	CH_3COCH_3	(I)	NaCHO ₃ test
(B)	CH_3COOH	(II)	Tollen's test

(C)		(III)	Iodoform test
(D)		(IV)	FeCl_3 test

Choose the **most appropriate** answer from the options given below:

- (a) (A)-(I), (B)-(III), (C)-(II), (D)-(IV)
 (b) (A)-(I), (B)-(III), (C)-(IV), (D)-(II)
 (c) (A)-(III), (B)-(I), (C)-(IV), (D)-(II)
 (d) (A)-(III), (B)-(I), (C)-(II), (D)-(IV)

Q23. Which of the following is not the characteristics of enzymes?

- (a) Non - specific
 (b) Active at optimum pH
 (c) Affected by inhibitors
 (d) Highly efficient

Q24. Match **List-I** with **List-II**:

List-I	List-II
(A) $\text{CH}_3\text{CH}_2\text{Br} + \text{alc. KOH} \rightarrow$	(I) $\text{CH}_3\text{CH}_2\text{NO}_2$
(B) $\text{CH}_3\text{CH}_2\text{Br} + \text{aq. KOH} \rightarrow$	(II) $\text{CH}_2 = \text{CH}_2$
(C) $\text{CH}_3\text{CH}_2\text{Br} + \text{KNO}_2 \rightarrow$	(III) $\text{CH}_3\text{CH}_2\text{ONO}$
(D) $\text{CH}_3\text{CH}_2\text{Br} + \text{AgNO}_2 \rightarrow$	(IV) $\text{CH}_3\text{CH}_2\text{OH}$

Choose the **correct** answer from the options given below:

- (a) (A)-(IV), (B)-(II), (C)-(I), (D)-(III)
 (b) (A)-(IV), (B)-(II), (C)-(III), (D)-(I)
 (c) (A)-(II), (B)-(IV), (C)-(III), (D)-(I)
 (d) (A)-(II), (B)-(IV), (C)-(I), (D)-(III)

Q25. Correct order of intermolecular forces of attractions in the following solids is:

- (A) NaCl
 (B) I_2
 (C) Ice
 (D) Iron
 (E) Rubber

Choose the **correct** answer from the options given below:

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

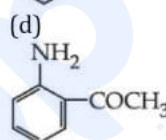
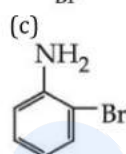
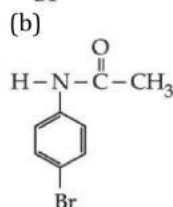
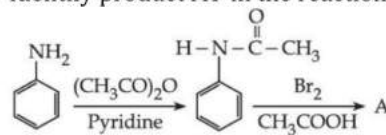
Q26. Which of the following statement is/ are correct for complex $[\text{NiCl}_4]^{2-}$

- (A) Ni has oxidation state + 2
 (B) Cl is a weak field ligand
 (C) Compound is paramagnetic
 (D) dsp^2 hybridisation
 (E) Low spin complex

Choose the **correct** answer from the options given below:

- (a) (A), (B) and (C) only
 (b) (D), and (E) only
 (c) (A), (B), (C) and (D) only
 (d) (A) only

Q27. Identify product i A' in the reaction shown below:



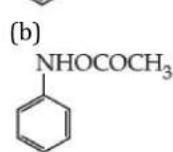
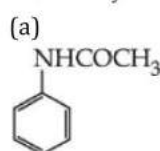
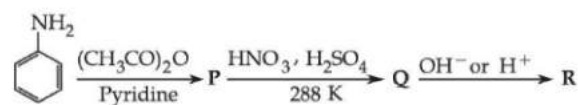
Q28. Correct order of boiling points in the following is:

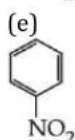
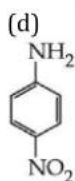
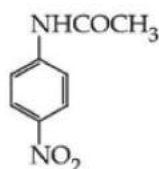
- (A) CH_3CHO
 (B) CH_3COOH
 (C) $\text{CH}_3\text{CH}_2\text{OH}$
 (D) CH_3CH_3
 (E) $\text{CH}_3\text{CH}_2\text{Cl}$

Choose the **correct** answer from the options given below:

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

Q29. Identify P, Q and R in the correct sequence of reactions shown below.





Choose the **correct** answer from the options given below:

- (a) (A), (B), and (C) only
 (b) (B), (D), and (E) only
 (c) (B), (C), and (D) only
 (d) (A), (C), and (D) only

Q30. Which of the following alkyl halide will undergo S_N1 reaction most readily:

- (a) $(CH_3)_3C-F$
 (b) $(CH_3)_3C-Cl$
 (c) $(CH_3)_3C-Br$
 (d) $(CH_3)_3C-I$

Q31. Which of the properties are shown by d block elements?

- (A) Complex formation
 (B) Chelating agents
 (C) Bleaching agents
 (D) Catalytic properties
 (E) Alloy formation

Choose the **correct** answer from the options given below:

- (a) (C), (D), (E) only
 (b) (A), (B), (C) only
 (c) (B), (C), (D) only
 (d) (A), (D), (E) only

Q32. Match **List-I** with **List-II**:

List-I		List-II	
(A)	Impurity defect	(I)	NaCl with anionic sites called F centres
(B)	Metal excess defect	(II)	FeO with Fe^{3+}
(C)	Metal deficiency defect	(III)	Non-ionic solids and density of solid decreases
(D)	Simple vacancy defect	(IV)	NaCl with Sr^{2+} and cationic sites vacant

Choose the **correct** answer from the options given below:

- (a) (A)-(III), (B)-(II), (C)-(I), (D)-(IV)
 (b) (A)-(IV), (B)-(I), (C)-(II), (D)-(III)
 (c) (A)-(II), (B)-(I), (C)-(II), (D)-(IV)

(d) (A)-(I), (B)-(II), (C)-(IV), (D)-(III)

Q33. Name the reagent required to convert cyclohexene into hexane —1, 6—dioic acid.

- (a) $KMnO_4/H_2SO_4, \Delta$
 (b) Tollen's reagent
 (c) Grignard reagent
 (d) KCN

Q34. Which of the statements are true?

- (A) The coagulation of lyophobic sols can be done by electrophoresis
 (B) Principal emulsifying agent for W/O emulsions are proteins, soaps, gums etc.
 (C) Alum is used for cleaning muddy water
 (D) Gelatin is added to ice cream to act as emulsifier

Choose the **correct** answer from the options given below:

- (a) (D), (C) and (A) only
 (b) (A), (C) and (D) only
 (c) (C), (A) and (D) only
 (d) (B), (C) and (A) only

Q35. Match the chemical conversion in **List-I** to the appropriate reagent in **List-II**.

List-I		List-II	
(A)		(I)	$Na_2Cr_2O_7$ in presence of H_2SO_4
(B)	$CH_3CH_2OH \rightarrow C_2H_5OC_2H_5$	(II)	H_2SO_4 at 443 K
(C)		(III)	Zn
(D)	$CH_3CH_2OH \rightarrow CH_2 = CH_2$	(IV)	H_2SO_4 at 413 K

Choose the **correct** answer from the options given below:

- (a) (A)-(III), (B)-(IV), (C)-(I), (D)-(II)
 (b) (A)-(II), (B)-(I), (C)-(III), (D)-(IV)
 (c) (A)-(I), (B)-(III), (C)-(II), (D)-(IV)
 (d) (A)-(IV), (B)-(I), (C)-(III), (D)-(II)

Q36. Write the IUPAC name of the following compound $C_6H_5O(CH_2)_6 - CH_3$

- (a) 2 - Methoxy heptane
 (b) 1 - Phenoxy heptane
 (c) 1 - Benzoyl heptane
 (d) Methyl benzyl ether

Q37. Tertiary amino group is found in:

- (a) Novocain
 (b) Ephedrine
 (c) Benadryl
 (d) Adrenaline

Q38. Which of the following shows both, Frenkel and Schottky defect?

- (a) KCl
 (b) AgCl
 (c) AgBr
 (d) NaCl

Q39. The role of a catalyst is to change:

- (a) Gibbs energy of reaction

- (b) Enthalpy of reaction
(c) Activation energy of reaction
(d) Equilibrium constant

Q40. Which of the following reaction occurs at anode during discharging of lead storage battery?

- (a) $\text{PbO}_2 + \text{SO}_4^{2-}(\text{aq}) + \text{H}^+(\text{aq}) + 2\text{e}^- \rightarrow \text{PbSO}_4(\text{s}) + 2\text{H}_2\text{O}(\text{l})$
(b) $\text{Pb}(\text{s}) + \text{SO}_4^{2-}(\text{aq}) \rightarrow \text{PbSO}_4(\text{s}) + 2\text{e}^-$
(c) $\text{PbSO}_4 + 2\text{e}^- \rightarrow \text{Pb}(\text{s}) + \text{SO}_4^{2-}(\text{aq})$
(d) $\text{PbSO}_4(\text{s}) + 2\text{H}_2\text{O}(\text{l}) \rightarrow \text{Pb}(\text{s}) + 2\text{H}_2\text{SO}_4 + \text{SO}_4^{2-}(\text{aq}) + \text{H}^+(\text{aq}) + 2\text{e}^-$

Direction for the question 41 to 45: **Answer the question on basis of passage given below:**

In zwitter ionic form, amino acids show amphoteric behaviour as they react both with acids and bases. Except glycine, all other naturally occurring α -amino acids are optically active, since the α -carbon atom is asymmetric. These exist both in 'D' and 'L' forms. Most naturally occurring amino acids have L-configuration. L-Aminoacids are represented by writing the $-\text{NH}_2$ group on left hand side.

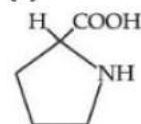
Q41. Which of the following amino acid is essential?

- (a) Glycine
(b) Glutamic acid
(c) Alanine
(d) Valine

Q42. Which of the following Zwitter ion form is correct?

- (a) $\begin{array}{c} \text{R} \\ | \\ \text{NH}_3^+ - \text{CH} - \text{COO}^- \end{array}$
(b) $\begin{array}{c} \text{R} \\ | \\ \text{NH}_4^+ - \text{CH} - \text{COO}^- \end{array}$
(c) $\begin{array}{c} \text{NH}_2 - \text{CH} - \text{COOH} \\ | \\ (\text{CH}_2)_2 - \text{COOH} \end{array}$
(d) $\begin{array}{c} \text{R} \\ | \\ \text{NH}_2 - \text{CH} - \text{COOH} \end{array}$

Q43. Identify the amino acid which is amphoteric in nature.

- (a) $\begin{array}{c} \text{NH}_2 \\ | \\ (\text{CH}_2)_3 - \text{NH} - \text{C} = \text{NH} \\ | \\ \text{NH}_2 - \text{CH} - \text{COOH} \end{array}$
(b) 
(c) $\begin{array}{c} \text{CH}_2 - \text{COOH} \\ | \\ \text{NH}_2 - \text{CH} - \text{COOH} \end{array}$
(d) $\text{NH}_2 - \text{C}_2\text{H}_5 - \text{COOH}$

Q44. Optically inactive amino acid from the following is:
(a) Valine

- (b) Glycine
(c) Alanine
(d) Proline

Q45. β -D-Deoxyribose and β -D-ribose differs from each other in configuration at:

- (a) C-5
(b) C-3
(c) C-4
(d) C-2

Direction for the question 46 to 50: **Answer the question on basis of passage given below:**

P block elements are placed in groups 13 to 18 of the periodic table. Their valence shell electronic configuration is $ns^2 np^{1-6}$. Group 16 of the p block elements are known as the group of chalcogens having $ns^2 np^4$ as their general electronic configuration. They exhibit number of oxidation states but the stability of -2 oxidation state decreases down the group. They are sometimes also known as group of chalcogens as the name is derived from the Greek word for brass and points to the association of sulphur and its congeners with copper. Their ionisation enthalpy decreases down the group. Oxygen shows anomalous behaviour due to its small size and high electronegativity.

Q46. Which one is the correct electronic configuration of sulphur?

- (a) $[\text{Ne}] 3s^2 3p^2$
(b) $[\text{He}] 2s^2 2p^4$
(c) $[\text{Ne}] 3s^2 3p^4$
(d) $[\text{Ne}] 3s^2 3p^6$

Q47. Identify the epsom salt out of the following salts:

- (a) PbS
(b) ZnS
(c) CuFeS_2
(d) $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$

Q48. Match the oxidation state of phosphorous in the following compounds to their counter parts in **List II**.

List-I		List-II	
(A)	H_3PO_2	(I)	+3
(B)	$\text{H}_4\text{P}_2\text{O}_6$	(II)	+5
(C)	H_3PO_3	(III)	+1
(D)	H_3PO_4	(IV)	+4

Choose the **correct** answer from the options given below:

- (a) (A)-(III), (B)-(IV), (C)-(I), (D)-(II)
(b) (A)-(III), (B)-(I), (C)-(II), (D)-(IV)
(c) (A)-(I), (B)-(III), (C)-(II), (D)-(IV)
(d) (A)-(I), (B)-(IV), (C)-(II), (D)-(III)

Q49. What will be the products formed in the following equation?



- (a) $\text{UF}_4(\text{g})$ and $3\text{UCl}(\text{g})$
(b) $\text{UF}_6(\text{g})$ and $3\text{ClF}(\text{g})$
(c) $\text{UF}_4(\text{g})$ and $3\text{ClF}(\text{g})$
(d) $\text{UF}_6(\text{g})$ and $3\text{UCl}(\text{g})$

Q50. Given below are the Hydrides formed by group 15 elements. Choose the correct decreasing order of basicity of the following hydrides

- (A) AsH_3
- (B) PH_3
- (C) NH_3
- (D) BiH_3

(E) SbH_3

Choose the **correct** answer from the options given below:

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

Prepp
Your Personal Exam Guide