CUET CHEMISTRY MOCK TEST

Q1. Which of the following statements about SN1 reactions is correct?

(A) SN1 reactions follow first-order kinetics
(B) Carbocation intermediate is formed
(C) The rate depends only on the concentration of nucleophile
(D) Rate of reaction increases with polar protic solvent

Options:
(A) Only A & B
(B) Only A, B & D
(C) All of the above
(D) Only C

Q2. The IUPAC name of the compound [Cr(NH3)5Cl]Cl2 is:

(A) Pentaamminechloridochromium(III) chloride
(B) Pentaamminechloridochromium(II) chloride
(C) Pentachloridoamminechromium(III)
(D) Amminopentachloridochromium(II)

Q3. Arrange the following in increasing order of boiling points:

CH3CHO, CH3CH2OH, CH3OCH3, CH3CH3

(A) CH3CH3 < CH3OCH3 < CH3CHO < CH3CH2OH
(B) CH3CH3 < CH3CHO < CH3OCH3 < CH3CH2OH
(C) CH3OCH3 < CH3CH3 < CH3CHO < CH3CH2OH
(D) CH3CH3 < CH3CHO < CH3CH2OH < CH3OCH3

Q4. The oxidation state of Mn in $KMnO_4$ is:

(A) +3
(B) +4
(C) +6
(D) +7

Q5. Match the following polymers with their monomers:

Polymer	Monomer
A. PVC	I. Tetrafluoroethene
B. Nylon-6	II. Vinyl chloride
C. PTFE	III. Caprolactam
D. Bakelite	IV. Phenol + formaldehyde

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

Q6. Which of the following is true for ideal solutions?

(A) $\Delta H_{mix} = 0$
(B) $\Delta V_{mix} \neq 0$
(C) Obey Raoult's law
(D) No change in enthalpy or volume on mixing

Options:
(A) A and B only
(B) A and C only
(C) A, C, and D
(D) All of the above

Q7. The correct order of decreasing acidic strength is:

(A) HCOOH > CH3COOH > C6H5COOH > ClCH2COOH
(B) ClCH2COOH > HCOOH > C6H5COOH > CH3COOH
(C) ClCH2COOH > HCOOH > CH3COOH > C6H5COOH
(D) C6H5COOH > CH3COOH > HCOOH > ClCH2COOH

Q8. The half-life of a reaction increases with decreasing concentration. The order of the reaction is:

(A) Zero
(B) First

(C) Second
(D) Pseudo-zero

Q9. The reaction of Benzaldehyde with acetophenone in presence of dilute NaOH is called:

(A) Cannizzaro reaction
(B) Crossed Aldol Condensation
(C) Perkin reaction
(D) Benzoin condensation

Q10. Choose the correct statements regarding transition elements:

(A) They form coloured compounds
(B) They show variable oxidation states
(C) They form magnetic compounds
(D) They do not form complexes

Options:
(A) A, B, C only
(B) All except D
(C) A and D only
(D) All of the above

Q11. Which of the following compounds undergo Cannizzaro reaction?

(A) Benzaldehyde
(B) Formaldehyde
(C) Acetaldehyde
(D) p-Tolualdehyde

Options:
(A) A, B
(B) A, C
(C) B, D
(D) A, B, D

Q12. Which among the following has the highest dipole moment?

(A) H_2O
(B) CO_2

(C) BF3
(D) CCl4

Q13. Assertion: Raoult’ s law is applicable for ideal solutions.

Reason: Ideal solutions show positive deviation from Raoult’s law.

(A) Both A and R are true and R is correct explanation
(B) Both A and R are true but R is not correct explanation
(C) A is true, R is false
(D) A is false, R is true

Q14. Which compound gives a positive Tollen’ s test?

(A) CH3CHO
(B) CH3COOH
(C) CH3OH
(D) CH3COCH3

Q15. Arrange the following in increasing order of bond angle:

H2O, NH3, CH4, BeCl2

(A) BeCl2 < H2O < NH3 < CH4
(B) CH4 < NH3 < H2O < BeCl2
(C) H2O < NH3 < BeCl2 < CH4
(D) BeCl2 < NH3 < H2O < CH4

Q16. Which of the following are not aromatic compounds?

1. Benzene
2. Cyclobutadiene
3. Pyrrole
4. Cyclohexene

(A) 2 and 4
(B) 1 and 2

(C) 2, 3, 4
(D) Only 4

Q17. Match the following:

| A. Carbohydrates | I. Made of amino acids
| B. Proteins | II. Source of genetic info
| C. Nucleic acids | III. Sugars
| D. Enzymes | IV. Biocatalysts

(A) A–III, B–I, C–II, D–IV
(B) A–II, B–III, C–IV, D–I
(C) A–I, B–II, C–III, D–IV
(D) A–IV, B–I, C–II, D–III

Q18. Which of the following will form a buffer solution?

(A) CH3COOH + CH3COONa
(B) HCl + NaCl
(C) NH4Cl + NH4OH
(D) Both A and C

Q19. The hybridisation and shape of $[Ni(CN)_4]^{2-}$ are:

(A) sp^3, tetrahedral
(B) dsp^2, square planar
(C) sp^2, trigonal planar
(D) sp^3d, seesaw

Q20. Which of the following statements are correct for adsorption?

1. Exothermic in nature
2. ΔH is negative
3. Increases with rise in temperature
4. Used in heterogeneous catalysis

(A) 1, 2, and 4
(B) 2 and 3 only
(C) All of the above
(D) 1 and 3 only

Q21. In the galvanic cell Zn | Zn^{2+} || Cu^{2+} | Cu, electrons flow:

(A) From Cu to Zn
(B) From Zn to Cu
(C) From salt bridge
(D) Through electrolyte only

Q22. For a first-order reaction, the half-life is:

(A) Proportional to initial concentration
(B) Inversely proportional
(C) Independent of initial concentration
(D) Varies with temperature only

Q23. Which pair of reactants will undergo aldol condensation?

(A) HCHO + CH3COCH3
(B) CH3CHO + CH3CHO
(C) CH3CHO + HCOOH
(D) CH3OH + CH3COOH

Q24. The standard enthalpy of formation of an element in its most stable form is:

(A) 0
(B) 1
(C) Depends on temperature
(D) Always negative

Q25. Match the following:

| A. Electrolysis of molten NaCl | I. H_2 and Cl_2
| B. Electrolysis of aqueous NaCl | II. Na and Cl_2
| C. Electrolysis of water | III. H_2 and O_2
| D. Electrolysis of $CuSO_4$ | IV. Cu and O_2

Options:
(A) A–II, B–I, C–III, D–IV
(B) A–I, B–II, C–IV, D–III
(C) A–III, B–IV, C–II, D–I
(D) A–IV, B–III, C–I, D–II

Q26. Which among the following is not a greenhouse gas?

(A) CO_2
(B) CH_4
(C) CFCs
(D) N_2

Q27. Which of the following statements are correct regarding colloids?

1. Colloids are heterogeneous
2. Tyndall effect is observed
3. Cannot be filtered
4. Show Brownian motion

(A) 1, 2, 3
(B) 2, 3, 4
(C) All of the above
(D) 1, 2, 4

Q28. An example of an amorphous solid is:

(A) NaCl
(B) Quartz
(C) Glass
(D) Diamond

Q29. Which reagent gives a carboxylic acid on oxidation?

(A) Primary alcohol
(B) Secondary alcohol
(C) Tertiary alcohol
(D) Ether

Q30. Which metal shows variable valency but no color in compounds?

(A) Zn
(B) Cu
(C) Fe
(D) Cr

Q31. Which of the following statements about ‘crystal field theory’ is true?

(A) It explains bonding using covalent theory
(B) Ligands split d-orbitals of metal
(C) It is only applicable to non-transition metals
(D) Color arises due to s–p mixing

Q32. The correct order of basicity is:

(A) NH3 > CH3NH2 > (CH3)2NH
(B) (CH3)2NH > CH3NH2 > NH3
(C) NH3 > (CH3)2NH > CH3NH2
(D) All are equally basic

Q33. In electrolysis, Faraday’s second law relates:

(A) Mass deposited to current
(B) Mass deposited to atomic weight
(C) Equivalent weight and charge
(D) Mass deposited to time only

Q34. The colour of transition metal compounds is due to:

(A) Charge transfer
(B) d–d transition
(C) Both A and B
(D) s–p mixing

Q35. Which of the following is used as a rocket propellant?

(A) TNT
(B) Liquid hydrogen + oxygen
(C) LPG
(D) N_2O

Q36. Which among the following is biodegradable?

(A) Nylon
(B) PVC
(C) PHBV
(D) Polystyrene

Q37. pH of a 0.01 M HCl solution is:

(A) 1
(B) 2
(C) 3
(D) 4

Q38. Which of the following reduces Tollens' reagent?

(A) Glucose
(B) Fructose
(C) Formaldehyde
(D) All of the above

Q39. Which of these is not a component of DNA?

(A) Ribose
(B) Deoxyribose

(C) Phosphate group
(D) Nitrogenous base

Q40. Match the following catalysts with the reaction:

| A. V_2O_5 | I. Contact process
| B. Pt | II. Hydrogenation
| C. Fe | III. Haber process
| D. $AlCl_3$ | IV. Friedel-Crafts

(A) A–I, B–II, C–III, D–IV
(B) A–IV, B–I, C–II, D–III
(C) A–III, B–IV, C–I, D–II
(D) A–II, B–III, C–IV, D–I

Q41. Which among the following is used in artificial rain?

(A) NaCl
(B) $AgNO_3$
(C) $AlCl_3$
(D) $ZnSO_4$

Q42. Which of the following is true for vitamin C?

(A) It is water soluble
(B) Chemically ascorbic acid
(C) Deficiency causes scurvy
(D) All of the above

Q43. Identify correct order of reactivity in EAS (electrophilic aromatic substitution):

(A) Nitrobenzene < Benzene < Toluene
(B) Toluene < Benzene < Nitrobenzene
(C) Benzene < Nitrobenzene < Toluene
(D) Nitrobenzene < Toluene < Benzene

Q44. Which of the following behaves both as nucleophile and electrophile?

(A) CH_3^-
(B) BF_3
(C) H_2O
(D) $AlCl_3$

Q45. The molecular shape of XeF_4 is:

(A) Tetrahedral
(B) Trigonal planar
(C) Square planar
(D) Octahedral

Q46. In cold countries, salt is spread on roads in winter to:

(A) Increase friction
(B) Lower freezing point of water
(C) Raise freezing point of water
(D) Neutralize acid rain

Q47. Which of the following shows optical isomerism?

(A) Butane
(B) 2-Butanol
(C) 1-Butanol
(D) Acetone

Q48. The number of π bonds in benzene is:

(A) 1
(B) 2
(C) 3
(D) 6

Q49. Which of these will give iodoform test?

(A) Ethanol
(B) Acetone

(C) CH3CH(OH)CH3
(D) All of the above

Q50. The Langmuir adsorption isotherm assumes:

(A) Multilayer adsorption
(B) Uniform surface
(C) Adsorption proportional to pressure
(D) Chemisorption only