

Quiz: Chemistry set 5

Q201: The maximum kinetic energy of photoelectrons emitted from a metal surface depends on:

- A) Intensity of incident light
- B) Time of exposure
- C) Frequency of incident light
- D) Nature of metal only

Q202: For a zero order reaction, the plot of concentration versus time is:

- A) Exponential
- B) Linear
- C) Parabolic
- D) Hyperbolic

Q203: The total number of electrons that can be accommodated in the subshell with $l = 2$ is:

- A) 2
- B) 6
- C) 10
- D) 14

Q204: The pH of a solution with $[\text{OH}^-] = 1 \times 10^{-4} \text{ M}$ is:

- A) 4
- B) 6
- C) 10
- D) 8

Q205: Which colligative property is affected least by association of solute?

- A) Osmotic pressure
- B) Elevation of boiling point
- C) Depression of freezing point
- D) Relative lowering of vapour pressure

Q206: The correct order of metallic character is:

- A) $\text{Al} > \text{Mg} > \text{Na}$
- B) $\text{Na} > \text{Mg} > \text{Al}$
- C) $\text{Mg} > \text{Na} > \text{Al}$
- D) $\text{Na} > \text{Al} > \text{Mg}$

Q207: The hybridization of the central atom in SF_4 is:

- A) sp^3
- B) sp^3d
- C) sp^3d^2
- D) sp^2

Q208: Which of the following complexes is paramagnetic?

- A) $[\text{Ni}(\text{CN})_4]^{2-}$
- B) $[\text{Co}(\text{NH}_3)_6]^{3+}$
- C) $[\text{Fe}(\text{CN})_6]^{4-}$

D) $[\text{Zn}(\text{NH}_3)_4]^{2+}$

Q209: The SI unit of entropy is:

- A) J
- B) J mol^{-1}
- C) J K^{-1}
- D) $\text{J mol}^{-1} \text{K}^{-1}$

Q210: Which reagent converts aldehyde to primary alcohol?

- A) KMnO_4
- B) NaBH_4
- C) PCC
- D) HNO_3

Q211: The total number of sigma bonds in propane is:

- A) 8
- B) 9
- C) 10
- D) 11

Q212: Which compound has maximum ionic character?

- A) LiF
- B) LiCl
- C) NaCl
- D) KBr

Q213: The oxidation number of chromium in $\text{K}_2\text{Cr}_2\text{O}_7$ is:

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

Q214: The bond angle in NH_3 is less than that in CH_4 because:

- A) NH_3 has lower electronegativity
- B) NH_3 has lone pair-bond pair repulsion
- C) CH_4 has stronger bonds
- D) NH_3 is planar

Q215: Which gas behaves most ideally at high temperature and low pressure?

- A) NH_3
- B) CO_2
- C) H_2
- D) SO_2

Q216: How many moles of solute are present in 250 mL of 0.4 M solution?

- A) 0.05
- B) 0.1
- C) 0.2
- D) 0.4

Q217: Which amine is least basic in aqueous solution?

- A) NH_3
- B) CH_3NH_2
- C) $(\text{CH}_3)_2\text{NH}$
- D) $(\text{CH}_3)_3\text{N}$

Q218: The coordination number of metal in $[\text{PtCl}_6]^{2-}$ is:

- A) 4
- B) 6
- C) 2
- D) 8

Q219: Which of the following is an extensive property?

- A) Pressure
- B) Density
- C) Temperature
- D) Internal energy

Q220: The value of rate constant increases when:

- A) Temperature decreases
- B) Activation energy increases
- C) Catalyst is used
- D) Concentration decreases

Q221: Which compound is commonly used as an antacid?

- A) NaCl
- B) $\text{Al}(\text{OH})_3$
- C) NH_4Cl
- D) H_2SO_4

Q222: The total number of valence electrons in NO_2^- ion is:

- A) 16
- B) 18
- C) 20
- D) 22

Q223: Which is the strongest oxidizing agent among the following?

- A) Cl_2
- B) O_3
- C) KMnO_4
- D) F_2

Q224: The time required for 99% completion of a first order reaction is approximately:

- A) $5 t_{1/2}$
- B) $6.6 t_{1/2}$
- C) $3.3 t_{1/2}$
- D) $10 t_{1/2}$

Q225: Which of the following is an example of homogeneous catalysis?

- A) Ni in hydrogenation
- B) Fe in Haber process
- C) H^+ in ester hydrolysis
- D) V_2O_5 in contact process

Q226: The correct order of bond energy is:

- A) $\text{C}-\text{C} < \text{C}=\text{C} < \text{C}\equiv\text{C}$
- B) $\text{C}\equiv\text{C} < \text{C}=\text{C} < \text{C}-\text{C}$
- C) $\text{C}=\text{C} < \text{C}-\text{C} < \text{C}\equiv\text{C}$
- D) $\text{C}-\text{C} < \text{C}\equiv\text{C} < \text{C}=\text{C}$

Q227: Which molecule has zero dipole moment?

- A) NH_3
- B) H_2O
- C) CO_2
- D) HCl

Q228: A buffer solution shows maximum resistance to pH change when:

- A) $\text{pH} = 7$
- B) $\text{pH} = \text{pK}_a$
- C) $\text{pH} = 14$
- D) Only salt is present

Q229: Which of the following is a non-electrolyte in aqueous solution?

- A) NaCl
- B) KOH
- C) Glucose
- D) HCl

Q230: The IUPAC name of $\text{CH}_3\text{-CH}_2\text{-CHO}$ is:

- A) Propanone
- B) Propanal
- C) Ethanal
- D) Propanol

Q231: Which halogen has the lowest bond dissociation energy?

- A) F_2
- B) Cl_2
- C) Br_2
- D) I_2

Q232: The geometry of XeF_4 molecule is:

- A) Tetrahedral
- B) Square planar
- C) Octahedral
- D) Linear

Q233: Which of the following is a state function?

- A) Heat
- B) Work
- C) Enthalpy
- D) Path

Q234: The number of pi bonds in ethyne molecule is:

- A) 1
- B) 2
- C) 3
- D) 0

Q235: Which compound shows geometrical isomerism?

- A) Ethene
- B) Propene
- C) But-2-ene
- D) Methane

Q236: The SI unit of molar conductivity is:

- A) S m⁻¹
- B) S m² mol⁻¹
- C) Ohm m
- D) Ohm⁻¹ m

Q237: Which metal is extracted by carbon reduction method?

- A) Al
- B) Na
- C) Fe
- D) Mg

Q238: For a first order reaction, the rate law is:

- A) Rate = k
- B) Rate = k[A]
- C) Rate = k[A]²
- D) Rate = k/[A]

Q239: Which acid is weakest in aqueous solution?

- A) HF
- B) HCl
- C) HBr
- D) HI

Q240: The oxidation state of carbon in CO is:

- A) +2
- B) -2
- C) 0
- D) +4

Q241: Which compound gives positive Tollens test?

- A) Acetone
- B) Formaldehyde
- C) Benzophenone
- D) Acetic acid

Q242: The standard enthalpy of formation of $\text{N}_2(\text{g})$ is:

- A) -286 kJ mol^{-1}
- B) 0
- C) $+286 \text{ kJ mol}^{-1}$
- D) -393 kJ mol^{-1}

Q243: Which ion has the highest hydration enthalpy?

- A) Na^+
- B) K^+
- C) Li^+
- D) Cs^+

Q244: The reagent used to convert carboxylic acid into ester is:

- A) SOCl_2
- B) NaBH_4
- C) Alcohol + acid
- D) PCC

Q245: Which of the following ions is diamagnetic?

- A) Fe^{3+}
- B) Mn^{2+}
- C) Zn^{2+}
- D) Cu^{2+}

Q246: The correct order of thermal stability of nitrates is:

- A) $\text{LiNO}_3 < \text{NaNO}_3 < \text{KNO}_3$
- B) $\text{KNO}_3 < \text{NaNO}_3 < \text{LiNO}_3$
- C) $\text{NaNO}_3 < \text{KNO}_3 < \text{LiNO}_3$
- D) $\text{LiNO}_3 < \text{KNO}_3 < \text{NaNO}_3$

Q247: Which ligand is bidentate?

- A) NH_3
- B) H_2O
- C) en
- D) Cl^-

Q248: The value of R in calorie per mole per kelvin is:

- A) 1.987
- B) 8.314
- C) 0.0821
- D) 2.303

Q249: Which acid is strongest in aqueous solution?

- A) HNO_3
- B) H_2SO_4
- C) HClO_4
- D) CH_3COOH

Q250: The enthalpy change during vaporization is always:

- A) Positive
- B) Negative
- C) Zero
- D) Uncertain