

Quiz: Chemistry set 8

Q352: The kinetic energy of an electron becomes double when its de Broglie wavelength becomes:

- A) Double
- B) Half
- C) One-fourth
- D) $\sqrt{2}$ times

Q353: For a reaction $A \rightarrow \text{Products}$, the rate law is $\text{rate} = k[A]^0$. The units of k are:

- A) s^{-1}
- B) $\text{mol L}^{-1} \text{s}^{-1}$
- C) $\text{L mol}^{-1} \text{s}^{-1}$
- D) dimensionless

Q354: The number of electrons that can have $n = 5$ and $l = 3$ is:

- A) 10
- B) 14
- C) 18
- D) 32

Q355: The pH of 0.01 M HCl solution is:

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

Q356: Which colligative property is best suited for determining molar mass of macromolecules?

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

Q357: The correct order of increasing atomic radius is:

- A) Cl < S < P
- B) P < S < Cl
- C) S < Cl < P
- D) Cl < P < S

Q358: The hybridization of central atom in XeF_4 is:

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

Q359: Which of the following complexes is paramagnetic?

- A) $[\text{Ni}(\text{CN})_4]^{2-}$
- B) $[\text{Zn}(\text{NH}_3)_4]^{2+}$
- C) $[\text{Fe}(\text{H}_2\text{O})_6]^{3+}$
- D) $[\text{Pt}(\text{NH}_3)_2\text{Cl}_2]$

Q360: The SI unit of entropy is:

- A) J
- B) J mol⁻¹
- C) J K⁻¹
- D) J mol⁻¹ K⁻¹

Q361: Which reagent converts carboxylic acids into aldehydes selectively?

- A) LiAlH₄
- B) NaBH₄
- C) PCC
- D) Rosenmund catalyst

Q362: The total number of sigma bonds in ethane molecule is:

- A) 6
- B) 7
- C) 8
- D) 9

Q363: Which compound has maximum ionic character?

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

Q364: The oxidation number of nitrogen in NO₂ is:

- A) +2
- B) +3
- C) +4
- D) +5

Q365: The bond angle in BF₃ molecule is:

- A) 109.5 deg
- B) 120 deg
- C) 107 deg
- D) 90 deg

Q366: Which gas deviates most from ideal behavior at low temperature?

- A) H₂
- B) He
- C) CO₂
- D) Ne

Q367: The molarity of a solution containing 5 g NaOH in 250 mL solution is:

- A) 0.25 M
- B) 0.5 M
- C) 0.75 M
- D) 1.0 M

Q368: Which amine is least basic in aqueous solution?

- A) NH₃
- B) CH₃NH₂
- C) (CH₃)₂NH
- D) (CH₃)₃N

Q369: The coordination number of Fe in [Fe(CN)₆]³⁻ is:

- A) 3
- B) 4
- C) 6
- D) 8

Q370: Which of the following is an extensive property?

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

Q371: The value of rate constant increases with:

- A) Decrease in temperature
- B) Increase in activation energy
- C) Increase in temperature
- D) Decrease in concentration

Q372: Which substance is used as an antacid?

- A) NaCl
- B) Mg(OH)₂
- C) NH₄Cl
- D) H₂SO₄

Q373: The total number of valence electrons in CO₃²⁻ ion is:

- A) 22
- B) 24
- C) 30
- D) 32

Q374: Which of the following is the strongest oxidizing agent?

- A) Cl₂
- B) KMnO₄
- C) O₃
- D) F₂

Q375: The time required for 93.75% completion of a first order reaction is:

- A) 3 t_{1/2}
- B) 4 t_{1/2}
- C) 5 t_{1/2}
- D) 6 t_{1/2}

Q376: Which of the following is an example of heterogeneous catalysis?

- A) H⁺ in ester hydrolysis
- B) Ni in hydrogenation
- C) NO in SO₂ oxidation
- D) I⁻ in H₂O₂ decomposition

Q377: The correct order of bond length is:

- A) C≡≡C < C=C < C-C
- B) C-C < C=C < C≡≡C
- C) C=C < C≡≡C < C-C
- D) C≡≡C < C-C < C=C

Q378: Which molecule has zero dipole moment?

- A) NH₃
- B) H₂O
- C) CO₂
- D) SO₂

Q379: A buffer solution is most effective when:

- A) pH = 7
- B) pH = pK_a
- C) Only salt is present
- D) Only acid is present

Q380: Which of the following is a non-electrolyte?

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

Q381: The IUPAC name of CH₃-CH₂-COOH is:

- A) Ethanoic acid
- B) Propanoic acid
- C) Butanoic acid
- D) Methanoic acid

Q382: Which halogen has maximum bond dissociation energy?

- A) F₂
- B) Cl₂
- C) Br₂
- D) I₂

Q383: The geometry of XeF₂ is:

- A) Bent
- B) Linear
- C) Trigonal planar
- D) Tetrahedral

Q384: Which of the following is a state function?

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

Q385: The number of pi bonds in ethyne is:

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

Q386: Which compound shows geometrical isomerism?

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

Q387: The SI unit of molar conductivity is:

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

Q388: Which metal is extracted by electrolytic reduction?

- A) Fe
- B) Cu
- C) Al
- D) Zn

Q389: 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]

Q390: Which acid is weakest in aqueous solution?

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

Q391: The oxidation state of carbon in CO is:

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

Q392: Which compound gives positive Tollens test?

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

Q393: The standard enthalpy of formation of H₂(g) is:

- A) -286 kJ mol⁻¹
- B) 0
- C) +286 kJ mol⁻¹
- D) -393 kJ mol⁻¹

Q394: Which ion has highest hydration enthalpy?

- A) Li⁺
- B) Na⁺
- C) K⁺
- D) Cs⁺

Q395: The reagent used to convert alcohol into alkene is:

- A) NaBH₄
- B) PCC
- C) Conc. H₂SO₄
- D) KMnO₄

Q396: Which ion is diamagnetic?

- A) Fe³⁺
- B) Mn²⁺
- C) Zn²⁺
- D) Cu²⁺

Q397: The correct order of thermal stability of carbonates is:

- A) Li₂CO₃ < Na₂CO₃ < K₂CO₃
- B) K₂CO₃ < Na₂CO₃ < Li₂CO₃
- C) Na₂CO₃ < K₂CO₃ < Li₂CO₃
- D) Li₂CO₃ < K₂CO₃ < Na₂CO₃

Q398: Which ligand is bidentate?

- A) NH₃
- B) H₂O
- C) en
- D) Cl⁻

Q399: The value of gas constant R in cal mol⁻¹ K⁻¹ is:

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

Q400: The enthalpy change for an endothermic reaction is:

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