

Quiz: Chemistry set 11

Q501: The de Broglie wavelength of a particle is inversely proportional to its:

- A) Mass
- B) Velocity
- C) Momentum
- D) Energy

Q502: For a reaction following first order kinetics, the half-life is:

- A) Proportional to initial concentration
- B) Inversely proportional to initial concentration
- C) Independent of initial concentration
- D) Dependent on pressure

Q503: The maximum number of electrons that can be accommodated in a subshell with $l = 0$ is:

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

Q504: The pH of a 1×10^{-3} M NaOH solution is:

- A) 3
- B) 7
- C) 11
- D) 13

Q505: Which colligative property is directly proportional to temperature?

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

Q506: The correct order of increasing atomic radius is:

- A) F < O < N
- B) N < O < F
- C) O < N < F
- D) F < N < O

Q507: The hybridization of central atom in PF₅ is:

- A) sp³
- B) sp^{3d}
- C) sp^{3d}₂
- D) sp²

Q508: Which of the following complexes is diamagnetic?

- A) [Fe(H₂O)₆]²⁺
- B) [Mn(H₂O)₆]²⁺
- C) [Ni(CN)₄]²⁻

D) $[\text{CoF}_6]^{3-}$

Q509: The unit of Gibbs free energy change is:

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

Q510: Which reagent reduces ketones to secondary alcohols?

- A) KMnO₄
- B) NaBH₄
- C) PCC
- D) HNO₃

Q511: The total number of sigma bonds in ethene is:

- A) 4
- B) 5
- C) 6
- D) 7

Q512: Which compound shows maximum ionic character?

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

Q513: The oxidation state of nitrogen in NO_3^- ion is:

- A) +3
- B) +4
- C) +5
- D) +6

Q514: The bond angle in NH₃ is less than that in CH₄ because of:

- A) Lower electronegativity of N
- B) Lone pair-bond pair repulsion
- C) Higher mass of N
- D) pi-bonding

Q515: Which gas shows maximum deviation from ideal behavior?

- A) H₂
- B) He
- C) NH₃
- D) Ne

Q516: The molarity of a solution containing 2 g NaOH in 250 mL solution is:

- A) 0.1 M
- B) 0.2 M
- C) 0.4 M
- D) 0.5 M

Q517: Which amine is strongest base in aqueous solution?

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

Q518: The coordination number of metal ion in [Zn(NH₃)₄]²⁺ is:

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

Q519: Which of the following is an intensive property?

- A) Mass
- B) Volume
- C) Internal energy
- D) Temperature

Q520: The rate constant of a reaction is affected by:

- A) Concentration
- B) Time
- C) Temperature
- D) Initial amount

Q521: Which compound is commonly used as an antacid?

- A) NaCl
- B) Mg(OH)₂
- C) NH₄Cl
- D) HNO₃

Q522: The total number of valence electrons in NO₂ molecule is:

- A) 16
- B) 17
- C) 18
- D) 19

Q523: Which of the following is the strongest oxidizing agent?

- A) Cl₂
- B) O₃
- C) KMnO₄
- D) F₂

Q524: The time required for 87.5% completion of a first order reaction is:

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

Q525: 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) V₂O₅ in contact process

Q526: 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

Q527: Which molecule has zero dipole moment?

- A) NH₃
- B) H₂O
- C) CO₂
- D) SO₂

Q528: A buffer solution is most effective when:

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

Q529: Which of the following is a non-electrolyte?

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

Q530: The IUPAC name of CH₃-CO-CH₂-CH₃ is:

- A) Butan-1-one
- B) Butan-2-one
- C) Propanone
- D) Pentane-2-one

Q531: Which halogen has minimum bond dissociation energy?

- A) F₂
- B) Cl₂
- C) Br₂
- D) I₂

Q532: The geometry of ClF₃ molecule is:

- A) Trigonal planar
- B) T-shaped
- C) Linear
- D) Tetrahedral

Q533: Which of the following is a state function?

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

Q534: The number of pi bonds in ethyne molecule is:

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

Q535: Which compound shows geometrical isomerism?

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

Q536: The SI unit of molar conductivity is:

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

Q537: Which metal is extracted by electrolytic reduction?

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

Q538: The rate law for a zero order reaction is:

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

Q539: Which acid is weakest in aqueous solution?

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

Q540: The oxidation state of carbon in CO is:

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

Q541: Which compound gives positive Tollens test?

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

Q542: The standard enthalpy of formation of S8(s) is:

- A) 0
- B) +100 kJ mol⁻¹
- C) -100 kJ mol⁻¹
- D) -393 kJ mol⁻¹

Q543: Which ion has maximum hydration enthalpy?

- A) Li⁺
- B) Na⁺
- C) K⁺
- D) Cs⁺

Q544: The reagent used to convert alcohol into alkene is:

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

Q545: Which ion is diamagnetic?

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

Q546: 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

Q547: Which ligand is bidentate?

- A) NH₃
- B) H₂O
- C) en
- D) Cl⁻

Q548: The value of gas constant R in J mol⁻¹ K⁻¹ is:

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

Q549: Which acid is strongest in aqueous solution?

- A) HNO₃
- B) H₂SO₄
- C) HClO₄
- D) CH₃COOH

Q550: The enthalpy change of vaporization is always:

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