

Quiz: Chemistry set 2

Q51: The wavelength associated with an electron moving with a velocity of $1.1 \times 10^6 \text{ m s}^{-1}$ is closest to:

- A) $6.6 \times 10^{-10} \text{ m}$
- B) $3.3 \times 10^{-10} \text{ m}$
- C) $1.1 \times 10^{-10} \text{ m}$
- D) $9.1 \times 10^{-11} \text{ m}$

Q52: For a reaction $A \rightarrow \text{Products}$, the rate law is $r = k[A]^2$. If $[A]$ is doubled, the rate becomes:

- A) Double
- B) Four times
- C) Half
- D) Unchanged

Q53: The maximum number of electrons that can have $n = 3$ and $l = 1$ is:

- A) 6
- B) 10
- C) 14
- D) 18

Q54: The pH of a 0.001 M NaOH solution is:

- A) 3
- B) 11
- C) 10
- D) 7

Q55: Which of the following will have highest vapour pressure at the same temperature?

- A) 0.1 M glucose
- B) 0.1 M NaCl
- C) Pure water
- D) 0.1 M urea

Q56: The correct order of increasing electronegativity is:

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

Q57: The shape of IF_7 molecule is:

- A) Pentagonal bipyramidal
- B) Octahedral
- C) Trigonal bipyramidal
- D) Distorted octahedral

Q58: Which complex shows optical isomerism?

- A) $[\text{Co}(\text{NH}_3)_6]^{3+}$
- B) $[\text{Pt}(\text{NH}_3)_2\text{Cl}_2]$
- C) $[\text{Cr}(\text{en})_3]^{3+}$
- D) $[\text{Ni}(\text{CN})_4]^{2-}$

Q59: The unit of entropy change is:

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

Q60: Which reagent distinguishes aldehyde from ketone?

- A) Tollen's reagent
- B) Fehling solution
- C) 2,4-DNP
- D) Both A and B

Q61: The number of sigma bonds in ethane is:

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

Q62: Which of the following shows maximum covalent character?

- A) NaCl
- B) MgCl_2
- C) AlCl_3
- D) KCl

Q63: The oxidation state of S in $\text{Na}_2\text{S}_2\text{O}_3$ is:

- A) +2
- B) +4
- C) +6
- D) Average +2

Q64: The bond angle in water molecule is:

- A) 109.5°
- B) 120°
- C) 104.5°
- D) 107°

Q65: Which gas deviates most from ideal behavior?

- A) H_2
- B) N_2
- C) CO_2
- D) He

Q66: The number of moles of solute required to prepare 500 mL of 0.2 M solution is:

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

Q67: Which of the following is strongest base in aqueous solution?

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

Q68: The coordination number of Ni in $[\text{Ni}(\text{en})_2\text{Cl}_2]$ is:

- A) 4
- B) 6
- C) 2
- D) 3

Q69: Which of the following is an intensive property?

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

Q70: The rate constant of a reaction increases with:

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

Q71: Which compound is used as antacid?

- A) NaHCO_3
- B) Na_2CO_3
- C) CaO
- D) HCl

Q72: The total number of valence electrons in NO_3^- ion is:

- A) 22
- B) 24
- C) 26
- D) 32

Q73: Which of the following is strongest oxidizing agent?

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

Q74: The half-life of radioactive substance is independent of:

- A) Temperature
- B) Initial amount
- C) Pressure
- D) Both A and C

Q75: Which of the following is an example of homogeneous catalysis?

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

Q76: The correct order of bond length is:

- A) $C \equiv C < C=C < C-C$
- B) $C=C < C-C < C \equiv C$
- C) $C-C < C=C < C \equiv C$
- D) $C \equiv C < C-C < C=C$

Q77: Which of the following has zero dipole moment?

- A) NH_3
- B) H_2O
- C) CO_2
- D) SO_2

Q78: The pH of buffer remains unchanged on addition of small amount of:

- A) Strong acid
- B) Strong base
- C) Both A and B
- D) Salt

Q79: Which of the following is a non-electrolyte?

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

Q80: The IUPAC name of $CH_3-CH(OH)-CH_3$ is:

- A) Propan-1-ol
- B) Propan-2-ol
- C) Ethanol
- D) Methanol

Q81: Which element has highest electron affinity?

- A) F
- B) Cl
- C) Br
- D) I

Q82: The geometry of XeF₄ is:

- A) Tetrahedral
- B) Square planar
- C) Octahedral
- D) Trigonal bipyramidal

Q83: Which of the following is a state function?

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

Q84: The number of pi bonds in ethene is:

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

Q85: Which compound shows geometrical isomerism?

- A) But-1-ene
- B) But-2-ene
- C) Propene
- D) Ethene

Q86: The unit of molar conductivity is:

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

Q87: Which metal is extracted by electrolytic reduction?

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

Q88: The rate law for a zero order reaction is:

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

Q89: Which of the following is weakest acid?

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

Q90: The oxidation state of Cl in ClO_4^- is:

- A) +5
- B) +6
- C) +7
- D) +3

Q91: Which compound gives silver mirror test?

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

Q92: The standard enthalpy of formation of an element in its stable form is:

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

Q93: Which of the following has maximum hydration energy?

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

Q94: The reagent used to convert carboxylic acid to acid chloride is:

- A) SOCl_2
- B) NH_3
- C) HCl
- D) NaOH

Q95: Which of the following is paramagnetic?

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

Q96: The correct order of thermal stability of carbonates is:

- A) $\text{Li}_2\text{CO}_3 < \text{Na}_2\text{CO}_3 < \text{K}_2\text{CO}_3$
- B) $\text{K}_2\text{CO}_3 < \text{Na}_2\text{CO}_3 < \text{Li}_2\text{CO}_3$
- C) $\text{Na}_2\text{CO}_3 < \text{K}_2\text{CO}_3 < \text{Li}_2\text{CO}_3$
- D) $\text{Li}_2\text{CO}_3 < \text{K}_2\text{CO}_3 < \text{Na}_2\text{CO}_3$

Q97: Which of the following is a chelating ligand?

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

Q98: The value of gas constant R in L atm K⁻¹ mol⁻¹ is:

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

Q99: Which of the following is strongest acid in aqueous solution?

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

Q100: The enthalpy change for sublimation is always:

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