

Chemistry

1. pH of a substance is:

- A) $\log [H^+]$
 - B) $-\log [H^+]$
 - C) $\log [H^-]$
 - D) $-\log [H^-]$
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2. Which order has the identical unit of rate of reaction and rate constant?

- A) Fractional Order Reaction
 - B) Zero Order Reaction
 - C) First Order Reaction
 - D) Second Order Reaction
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3. Which of the following statement is correct?

- A) $(n-1)d$ subshell has lower energy than ns subshell
 - B) $(n-1)d$ subshell has higher energy than ns subshell
 - C) $(n+1)d$ subshell has lower energy than nf subshell
 - D) nf subshell has lesser energy than ns subshell
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4. The specific conductance of an electrolyte is:

- A) Increases with dilution
 - B) Decrease with dilution
 - C) Either may increase or decrease
 - D) No change
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5. What happens to entropy in the evaporation of water?

- A) It decreases
 - B) It increases
 - C) It does not change
 - D) Remains zero
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6. Which is the correct option for sulphur solution?

- A) Lyophilic Colloid
 - B) Lyophobic Colloid
 - C) Gel
 - D) Emulsion
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7. In the reduction of dichromate by Fe(II), the number of electrons involved per chromium atom is:

- A) 3
 - B) 4
 - C) 2
 - D) 1
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8. A real gas is expected to behave more or less ideally at:

- A) Low temperature and low pressure
 - B) Low temperature and high pressure
 - C) High temperature and low pressure
 - D) High temperature and high pressure
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9. Which of the following represents a multimolecular colloidal particles?

- A) Sol of sulphur
 - B) Lipids
 - C) Carbohydrate
 - D) Proteins
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10. Which one of the following molecule / ion shows regular tetrahedral structure?

- A) SO_2
 - B) BF_4^-
 - C) XeF_6
 - D) $[\text{Ni}(\text{CN})_4]^{2-}$
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11. Which of the following statements is correct for carbon monoxide?

- A) A double bond between carbon and oxygen
 - B) 1σ , 1π and 1 coordinate bond between carbon and oxygen
 - C) One lone pair of electrons only on oxygen atom
 - D) 1σ & 2π bonds between carbon and oxygen.
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12. Which of the following is the Alicyclic Compounds?

- A) Aromatic Compounds
 - B) Aliphatic Cyclic Compounds
 - C) Heterocyclic Compounds
 - D) Aliphatic compound
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13. Which among the following is the Baeyer's reagent?

- A) Alkaline permanganate solution
 - B) Acidified permanganate solution
 - C) Neutral permanganate solution
 - D) Aqueous bromine solution
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14. Which of the following expressions gives the de Broglie relationship?

- A) $p = h/v$
 - B) $\lambda = h/mv$
 - C) $h = mv/\lambda$
 - D) $\lambda = v/p$
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15. At 25°C, the highest osmotic pressure is exhibited by 0.1M solution of:

- A) Glucose
 - B) $K_3[Fe(CN)_6]$
 - C) $Ca(NO_3)_2$
 - D) $Al_2(SO_4)_3$
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16. Which of the following shows a negative deviation from Raoult's law?

- A) Acetone -Benzene
 - B) Acetone -Ethanol
 - C) Acetone -Chloroform
 - D) Benzene -Methanol
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17. Al^{3+} has lower ionic radius than Mg^{2+} ion because:

- A) Al atom has less number of neutrons than Mg
 - B) Their electro negativities are different
 - C) Mg has a higher ionization potential than Al
 - D) Al^{3+} has a higher nuclear charge than Mg^{2+}
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18. Which of the following correctly represents Thermoplastics?

- A) Intermolecular forces are strong
 - B) Intermolecular forces are weak
 - C) They cannot be remoulded into any shape
 - D) They have very high glass transition temperature
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19. Lithium is the strongest reducing agent among alkali metals due to which of the following factors?

- A) Ionisation energy
 - B) Electron affinity
 - C) Hydration energy
 - D) Lattice energy
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20. Gallium doped with germanium is a:

- A) n-type semiconductor
 - B) p-type semiconductor
 - C) p-n type semiconductor
 - D) p-n-p type semiconductor
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21. The EAN of the complex $[\text{Co}(\text{NH}_3)_6\text{Cl}_3]$ is:

- A) 33
 - B) 35
 - C) 36
 - D) 38
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22. In $\text{K}_4[\text{Fe}(\text{CN})_6]$ complex. What is the hybridization of Fe?

- A) d^2sp^2
 - B) d^2sp^3
 - C) dsp^2
 - D) sp^3
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23. Which one is the correct IUPAC name of Iso butyl bromide?

- A) 1-bromo butane
 - B) 2-bromo butane
 - C) 1-bromo-2-methyl propane
 - D) 2-bromo-2-mehtyl butane
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24. What is the indication for the appearance of red colour in Victor Meyer's test?

- A) 1° Alcohol
 - B) 2° Alcohol
 - C) 3° Alcohol
 - D) Phenol
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25. Which catalyst is used in the equation, $\text{C}_6\text{H}_5\text{CHO} + \text{CH}_3\text{COCH}_3 \rightarrow \text{C}_6\text{H}_5\text{CH} = \text{CHCOCH}_3$?

- A) NaOH
 - B) KMnO_4
 - C) $\text{K}_2\text{Cr}_2\text{O}_7$
 - D) LiAlH_4
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26. Which one of the following protein act as antibodies?

- A) Albumin
 - B) Haemoglobin
 - C) Actin
 - D) Gamma globulins
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27. What is a biochemical messenger called as?

- A) A transport protein
 - B) A hormone
 - C) An enzyme
 - D) An antigen
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28. The conversion of an amide to amine by reaction with Br_2 and KOH is called as:

- A) Carbyl amine reaction
 - B) Hoffman's reaction
 - C) Parkin's reaction
 - D) Aldol reaction
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29. $2\text{SO}_2 + \text{O}_2 \rightleftharpoons 2\text{SO}_3 + 185.2 \text{ k}$ According to Le Chatelier's principle, best yields of sulphur trioxide are obtained using:

- A) High pressure and high temperature
 - B) High pressure and low temperature
 - C) Low pressure and high temperature
 - D) Low pressure and low temperature
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30. What is the electron configuration for Berkelium?

- A) $[\text{Xe}]7s^25f^9$
 - B) $[\text{Xe}]7s^25f^96d^1$
 - C) $[\text{Rn}]7s^25f^9$
 - D) $[\text{Rn}]7s^25f^96d^1$
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