



## CHEMISTRY

### BOOKS - SURA CHEMISTRY (TAMIL ENGLISH)

### NEET BASED QUESTIONS

#### Neet Based Questions

1. Rutherford's alpha-particle scattering experiment eventually led to the conclusion that

- A. Mass and energy are related
- B. Electron occupy space around the nucleus
- C. Neutrons are buried deep in the nucleus

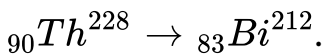
D. The point of impact with matter can be precisely determined.

**Answer: B**



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2. The number of  $\alpha$  and  $\beta$ -particles emitted in the nuclear reaction



- A. Four alpha and one beta
- B. Three alpha and seven beta
- C. Eight alpha and one beta
- D. One alpha and four beta

**Answer: A**



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**3. Principal quantum number determines**

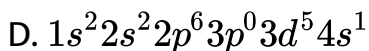
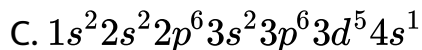
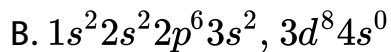
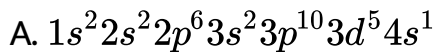
- A. Size of the electron wave and energy of electron
- B. Orbital angular momentum
- C. Shape of the electron cloud
- D. Configuration of orbitals in space

**Answer: A**



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4. Correct electronic configuration of Cr is



Answer: C



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5. The bond order of individual carbon-carbon bond in benzene is

A. 1

B. 2

C. Between 1 and 2

D. 1 and 2, alternatively

**Answer: D**



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**6. Hybridisation of sulphur in  $SO_2$  is**

A.  $sp$

B.  $sp^3$

C.  $sp^2$

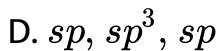
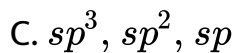
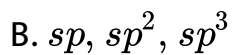
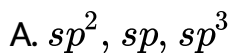
D.  $dsp^2$

**Answer: C**



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7. Hybridisation states of carbon in diamond, graphite and acetylene respectively, are

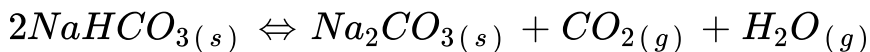


**Answer: C**



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8.  $\text{NaHCO}_3$  decomposes into:



The equilibrium pressure is 1.04 atm the  $K_p$  for the reaction is

A.  $0.2704 \text{ atm}^2$

B.  $2.704 \text{ atm}^2$

C.  $27.04 \text{ atm}^2$

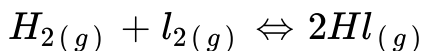
D.  $270.4 \text{ atm}^2$

**Answer: A**



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9. For the reaction



$K_c = 66.9$  at  $350^\circ C$  and  $50.0$  at  $448^\circ$ . The reaction has

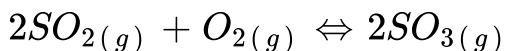
- A.  $\Delta H + ve$
- B.  $\Delta H = -ve$
- C.  $\Delta H = \text{zero}$
- D. None of these

**Answer: B**



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**10.** A mixture of  $SO_3$ ,  $SO_2$  and  $O_2$  gases in a 10.0 litre flask is maintained at a temperature at which the equilibrium constant  $K_c$  of the reaction is 100.





. If the number of moles of  $SO_2$  and  $SO_3$  in the flask are equal, the number of moles of  $O_2$  present is

A. 0.01

B. 0.1

C. 1.0

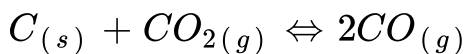
D. 10.0

**Answer: B**



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**11.** For the reaction



the partial pressures for  $CO_2$  and  $CO$  are 2.0 and 4.0 atm respectively at equilibrium.  $K_p$  for the reaction is

A. 0.5

B. 8.0

C. 4.0

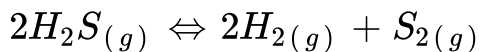
D. 32

**Answer: B**



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**12.** For the reversible reaction



The equilibrium concentrations, are

$$[H_2S] = 0.5 \text{ mole/litre}$$

$$[H_2] = 0.4 \text{ mole/litre}$$

$$[S_2] = 0.4 \text{ mole/litre}$$

The value of 'K' would be

A. 0.004 mole/litre

B. 0.08 mole/litre

C. 0.016 mole/litre

D. 0.16 mole/litre

**Answer: C**



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13. 'The molecularity of a reaction can be 0,1,3 etc.'" The statement is

A. 1

B.

C. Both the above

D. None of these

**Answer: B**



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14. For first order reaction the ratio of  $t_{0.75}$  to  $t_{0.25}$  would be

A. 4 : 3

B. 3 : 2

C. 2 : 1

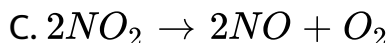
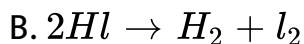
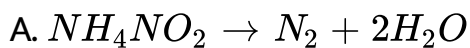
D. 1, 2

**Answer: C**



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15. which is the first order reaction?



**Answer: A**



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16. Which of the following aqueous solutions of sodium acetate will show a minimum pH?

A. 0.01 M

B. 0.001 M

C. 0.0001 M

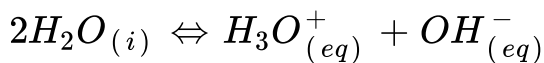
D. 0.1 M

**Answer: C**



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**17.** Pure water dissociates to a small extent as per equilibrium



The pH of pure water at 298 K is 7, what will be pH of pure water at 310 K?

A. 0

B. < 7

C.  $> 7$

D. 7

**Answer: B**



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**18.** A solution has  $\text{pH}=3$ . If its hydrogen ion concentration is decreased 1000 times, the  $\text{pH}$  of the solution will be

A. 6

B. 0

C. 3

D. None of these

**Answer: A**



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19. The brown ring compound is formulated as

$[Fe(H_2O)_5 \cdot NO]SO_4$ . The oxidation number of iron is

A. +1

B. 2

C. 3

D. 0

**Answer: A**



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20. In the reaction  $I_2 + 2Na_2S_2O_3 \rightarrow Na_2S_4O_6 + 2NaI$

the equivalent weight of oxidant is [M= Molecular weight of oxidant]-

A.  $\frac{M}{2}$

B. M

C.  $-\frac{M}{2}$

D.  $2M$

**Answer: A**



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21. Active mass is

A. gm moles per unit volume

B. gm atoms per unit volume

C. gm atomic number per unit volume

D. gm equivalent per unit volume

**Answer: A**



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**22.** An acid solution may have the pH

A. 1

B. 3

C. 0

D. 12

**Answer: D**



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**23.** The process of converting hydrated alumina to anhydrous alumina is called

- A. Calcination
- B. Smelting
- C. Rosting
- D. Concentration

**Answer: A**



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**24.** Auto-reduction is used in the extraction of

A. Copper

B. Zinc

C. Iron

D. Aluminium

**Answer: A**



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**25. What is the percentage of silver in german silver?**

A. 2.5 %

B. 1.5 %

C. 10 %

D. 0 %

**Answer: D**



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**26. Metals present in gun metal are**

A. Cu, Zn and Ni

B. Cu, Sn and Zn

C. Cu, Sn

D. Cu, Al

**Answer: B**



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27. Alkaline earth metals are

- A. Reducing agent
- B. Oxidising agent
- C. Amphoteric
- D. Acidic

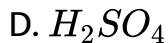
**Answer: A**



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28. Oil of vitriol is

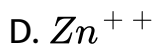
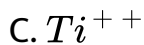
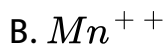
- A.  $PbSO_4$
- B.  $ZnSO_{4.7}H_2O$



**Answer: D**

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**29.** Which of the following ions has maximum magnetic moment?



**Answer: B**



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30.  $H_2O_2$  and heavy water were discovered respectively by

A. Thenard, Urey

B. Urey, Rutherford

C. Aston, Urey

D. Aton, Chadwick

**Answer: A**



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31. Which of the following compounds on reaction with

$H_2SO_4$  gives  $H_2O_2$ ?



A.  $PbO_2$

B.  $MnO_2$

C.  $SnO_2$

D.  $BaO_2$

**Answer: D**



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**32.** Boron compounds behave as lewis acid because of their

\_\_\_\_\_

A. Acidic nature

B. Covalent nature

C. Electron deficiency

D. Ionizing property

**Answer: C**

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**33. Ordinary glass is**

A. Sodium silicate

B. Calcium silicate

C. Calcium and Sodium silicate

D. Copper silicate

**Answer: C**

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34. Blue glass is obtained by adding

A.  $SeO$

B.  $CoO$

C.  $CdS$

D.  $MnO_2$

**Answer: B**

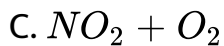


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35. On strong heating  $Pb(NO_3)_2$  gives

A.  $O_2$

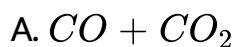
B.  $NO_2$



**Answer: C**

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**36.** Which of the following is formed when oxalic acid is dehydrated by conc.  $H_2SO_4$ ?



D. None of these

**Answer: A**



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**37.** Chlorine is manufactured by

- A. Birkland and Eyde's process
- B. Deacon's process
- C. Bosch's process
- D. Solvay's process

**Answer: B**



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**38.** Aniline is purified by

- A. Steam distillation
- B. Simple distillation
- C. Distillation under reduced pressure
- D. Distillation

**Answer: A**



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**39.** Ethylene can be prepared by electrolysis of an aqueous solution of

- A. Sodium acetate
- B. Sodium succinate
- C. Sodium fumarate

D. Sodium propionate

**Answer: B**

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**40.** Photochemical chlorination of alkanes is initiated by a process of

A. Pyrolysis

B. Substitution

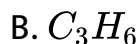
C. Homolysis

D. Peroxidation

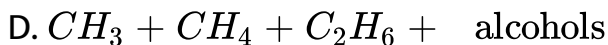
**Answer: C**

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41. On cracking petrol we get



C. Both A and B



**Answer: C**



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42.  $CCl_4$  does not give a precipitate with  $AgNO_3$  because

A. It forms complex with  $AgNO_3$



B.  $Cl_2$  gas is evolved

C. Chloride ions are not formed

D.  $AgNO_3$  does not give  $Ag^+$  ions

**Answer: C**



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**43.** The oxygen atom in a either molecule is

A. Very active

B. Replaceable

C. Comparatively inert

D. Active

**Answer: C**



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44. Schiff's reagent gives colour with

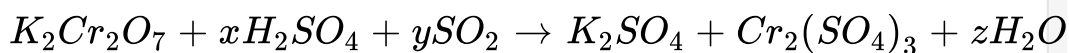
- A. Alcohols
- B. Acetaldehyde
- C. Acetone
- D. Mesitylene chloride

**Answer: B**



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45. In a chemical reaction



the values of x,y and z are

A. 1, 3, 1

B. 4, 1, 4

C. 3, 2, 3

D. 2, 1, 2

**Answer: A**



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**46.** The number of molecules present in one gm of hydrogen,

is

A.  $1.5 \times 10^{23}$

B.  $30.1 \times 10^{23}$

C.  $6.02 \times 10^{23}$

D.  $3.01 \times 10^{23}$

**Answer: D**



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**47.** The maximum number of electrons in a sub-shell for which  $l=3$ , is

A. 4

B. 6

C. 8

D. 14

**Answer: D**



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48. The ratio of energy of photons of  $\lambda = 2000\text{\AA}$  to that of  $\lambda = 4000\text{\AA}$  is

A.  $\frac{1}{2}$

B.  $\frac{1}{4}$

C. 2

D. 4

**Answer: C**



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49. The correct set of quantum numbers for the unpaired electron of chlorine atom is

A.  $n = 2, l = 1, m = 0$

B.  $n = 2, l = 1, m = 1$

C.  $n = 3, l = 1, m = 1$

D.  $n = 3, l = 0, m = 0$

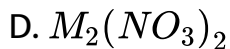
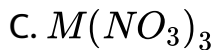
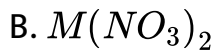
**Answer: C**



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50. The hydrogen phosphate of a metal has the formula  $M_2(HPO_4)_3$ , the formula of metal nitrate will be

A.  $MNO_3$

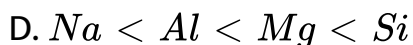
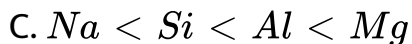
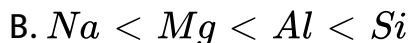
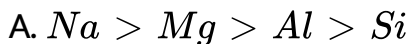


**Answer: C**



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**51.** The first ionization potentials of Na, Al, Mg and Si are in sequence



**Answer: D**



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**52.** Which of the following decreases in going down the halogen group?

- A. Atomic radius
- B. Ionic radius
- C. Ionization potential
- D. Boiling point

**Answer: C**



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53. Which of the following statements is correct?

- A. All metal nitrates are soluble in water
- B. Solubility of metal nitrates is least in water
- C. Nitrates of alkaline earth elements are insoluble in water
- D. Nitrates of alkali metal do not give the test of nitrate ion

**Answer: A**



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54. Lucas test is used to distinguish between

- A. Ethanol and glycol
- B. Phenol and p-cresol
- C. Butane-1-ol and 2-Methyl-propane-2-ol

D. Propane-1-ol and ethanol

**Answer: C**

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55. Which of the following is the most acidic?

A. Cyclohexanol

B. m-chlorophenol

C. Benzyl alcohol

D. Phenol

**Answer: B**

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56. Diethyl ether can be decomposed with

A. Dilute aqueous  $KMnO_4$

B. Water

C. Dilute aqueous  $NaOH$

D.  $Hl$  solution

**Answer: D**



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57. Aldehydes can be oxidised by

A. Tollen's reagent

B. Fehling solution

C. Benedict solution

D. All of these

**Answer: D**

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58. When acetamide reacts with  $Br_2$  and caustic soda, then we get

A. Acetic acid

B. Bromoacetic acid

C. Ethylamine

D. Methylamine

**Answer: D**



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59. Aromatic aldehydes in the presence of cyanide ions are converted into acylons. This reaction is known as

- A. Perkin's reaction
- B. Cannizzaro reaction
- C. Benzoin condensation
- D. Claisen condensation

**Answer: C**



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60. The product of the reaction  $CH_3COOH \xrightarrow{P_2O_5}$  ..... is

- A. Ethyl ethanoate
- B. Formic acid
- C. Ethanoic anhydride
- D.  $CO_2$  and water

**Answer: C**



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**61.** Fog is colloidal solution of

- A. Liquid dispersed in gas
- B. Gas dispersed in gas
- C. Solid dispersed in gas
- D. Solid dispersed in liquid

**Answer: A**



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**62. The catalyst**

- A. Increase the activation energy
- B. Helps in forming more products
- C. Bring about equilibrium
- D. None of these

**Answer: D**



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**63.** Milk can be preserved by adding a few drops of

- A. Acetaldehyde
- B. Formaldehyde
- C. Acetic acid
- D. Formic acid

**Answer: B**



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**64.** In a nuclear reactor, the function of moderator is

- A. To stop the nuclear reaction
- B. To produce excess of neutrons



C. To increase the speed of neutrons

D. To decrease the speed to neutrons

**Answer: D**



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**65.** Which of the following is not an endothermic reaction?

A. Decomposition of water

B. Conservsion of graphite into diamond

C. Dehydrogenation of ethane to ethylene

D. Combustion of methane

**Answer: D**



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66. A chemical reaction will not be feasible, if

- A.  $\Delta H$  is positive and  $\Delta S$  is also positive
- B.  $\Delta H$  is positive and  $\Delta S$  is negative
- C.  $\Delta H$  is negative and  $\Delta S$  is also negative
- D.  $\Delta H$  is negative and  $\Delta S$  is also positive

**Answer: B**



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67. The enthalpy of neutralisation of  $NaOH$  with  $H_2SO_4$  is  $-57.3$  kJ/mol. Which of the following is the best explanation of this difference?

- A. Ethanoic acid is only partially ionised, the neutralisation is, therefore, incomplete.
- B. Ethanoic acid is a weak acid and, therefore, requires less  $NaOH$  for neutralisation
- C. Ethanoic acid is monobasic while  $H_2SO_4$  is dibasic
- D. Some heat is actually utilised to ionize ethanoic acid completely

**Answer: D**



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**68.** Entropy of a system may depend upon

- A. Volume only

B. Temperature only

C. Pressure only

D. All of these

**Answer: D**



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69. A first order reaction has half-life of 69.3s. At 0.1 mol  $lit^{-1}$  reaction concentration, the reaction rate will be

A.  $6.93 \times 10^{-1} \text{ mol } lit^{-1}s^{-1}$

B.  $1.0 \times 10^{-1} \text{ mol } lit^{-1}s^{-1}$

C.  $1.0 \times 10^{-3} \text{ mol } lit^{-1}s^{-1}$

D.  $1.0 \times 10^{-4} \text{ mol lit}^{-1} \text{ s}^{-1}$

**Answer: C**

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70. Which one of the following noble gases is the least polarizable?

A. Helium

B. Neon

C. Krypton

D. Radon

**Answer: A**

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71. The molecular geometry of  $XeF_6$  molecule is

- A. Pyramidal
- B. Tetrahedral
- C. Distorted octahedral
- D. Trigonal bipyramidal

**Answer: C**



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72. In the aluminothermic process

- A.  $Al_2O_3$  is reduced by  $Cr$

B.  $Cr_2O_3$  is reduced by  $Al$

C.  $Al_2O_3$  is reduced by  $C$

D. None of these correct

**Answer: B**



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73. Which of the following minerals does not contain aluminium?

A. Cryolite

B. Mira

C. Feldspar

D. Fluorspar

**Answer: D**

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**74.** Which of the following statements is not correct regarding boron trifluoride?

- A. It can form an adduct
- B. It acts as a Lewis base
- C. It forms ionic bond
- D. It also forms dative bond with compound like  $NH_3$

**Answer: B**

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75. Positive carbylamine test is not shown by?

- A. N,N-dimethylaniline
- B. 2,4-dimethylaniline
- C. N-methyl-o-methylaniline
- D. p-methyl benzylamine

**Answer: B**



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76. Which of the following statements is not correct?

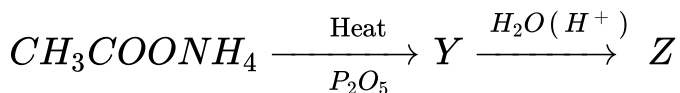
- A. Amines forms hydrogen bond
- B. Ethylamine has higher boiling point than propane
- C. Methylamine is more basic than ammonia

D. Dimethylamine is less basic than methylamine

Answer: D

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77. Identify 'Z' in the following reaction sequence?



A.  $CH_3CH_2CONH_2$

B.  $CH_3CN$

C.  $CH_3COOH$

D.  $(CH_3CO)_2O$

Answer: C

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78. The pH of a solution, obtained by mixing 50 ml of 0.4 HCl and 50 ml of 0.2 N  $NaOH$ , is

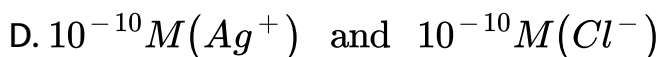
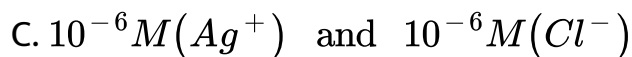
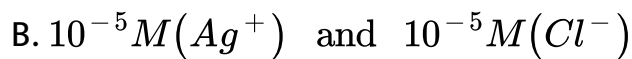
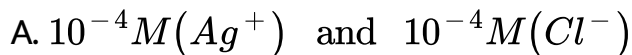
- A. 1.0
- B. 2.0
- C. 3.0
- D. 7.8

**Answer: A**

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79. When equal volume of the following solutions are mixed, precipitation of  $AgCl$  ( $K_{sp} = 1.8 \times 10^{-10}$ ) will occur only

with



**Answer: A**



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**80.** The equilibrium constant in a reversible reaction at a given temperature

A. Depends on initial concentration of reactions

B. Depends on the concentration of products at equilibrium

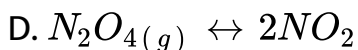
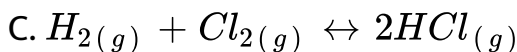
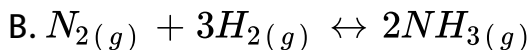
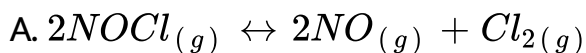
C. Does not depend on initial concentrations

D. It is not a characteristic of a reaction

**Answer: C**

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**81.** For which of the following reactions,  $K_p = K_c$ ?



**Answer: C**

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**82.** Which of the following conditions is not satisfied by an ideal solution?

A.  $\Delta H_{\text{mixing}} = 0$

B.  $\Delta V_{\text{mixing}} = 0$

C. Raoult's law is obeyed

D. Formation of an azeotropic mixture

**Answer: D**

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83. Which of the following aqueous solutions exhibits lowest boiling point?

A.  $0.1M NaCl$

B.  $0.1M CaCl_2$

C.  $0.1M CH_3COONa$

D.  $0.1M$  Glucose

**Answer: D**



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84. Butter is a colloid formed when

A. Water is dispersed in fat

B. Fat is dispersed in water

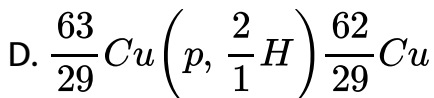
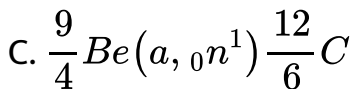
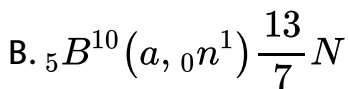
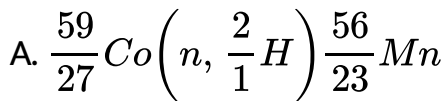
C. Fat globules are dispersed in water

D. Water is dispersed in oil

**Answer: A**

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**85.** Which of the following nuclear reactions is incorrect?



**Answer: A**

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86. In the radioactive decay of an element, the emitted electrons come from-

- A. Inner orbital of the atom
- B. Is orbital of the atom
- C. Nucleus of the atom
- D. The outermost shell of the atom

**Answer: C**



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87. The blocks of Mg metal are often strapped to the steel hulls of ocean going ships in order to

- A. Provide cathodic protection
- B. Prevent oxidation of steel
- C. Both A and B are correct
- D. None of these is correct

**Answer: C**



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**88.** In benzene the  $sp^3$  orbitals of each carbon atoms constitute

- A. Two  $\sigma$  and one  $\pi$  bond
- B. One  $\sigma$  and  $\pi$  two bonds
- C. Three  $\sigma$  bonds only

D. Three  $\sigma$  and  $\pi$  one bond

**Answer: C**

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**89.** The IUPAC name of



- A. 1,5-hexenyne
- B. 1,5-hexynene
- C. 1-hexen-5-yne
- D. 1-hexyn-5-ene

**Answer: D**

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90. In separate 0.1 M aqueous solution of each of the following salts, which one will record the highest pH value?

- A. Sodium carbonate
- B. Ammonium chloride
- C. Sodium nitrate
- D. Potassium acetate

**Answer: A**



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91. Real gases show an ideal-like behaviour at

- A. High pressure and low temperatures
- B. Low pressure and high temperatures
- C. Standard pressure and standard temperature
- D. High pressure and high temperatures

**Answer: C**

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**92.** The value of Planck's constant is \_\_\_\_\_.

- A.  $6.03 \times 10^{23} \text{ mol s}$
- B.  $6.03 \times 10^{-34} J s^{-1}$
- C.  $6.6262 \times 10^{-34} J s$
- D.  $6.63 \times 10^{-34} J s$

**Answer: C**



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**93.** The maximum number of molecules will be present in

A. 16g of  $NO_2$  gas

B. 16g of  $O_2$  gas

C. 7g of  $N_2$  gas

D. 2g of  $H_2$  gas

**Answer: D**



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94. Geometrical isomers differ in

- A. Chain structures
- B. Position of functional group in the chain
- C. Arrangement in space of atoms in respectively molecules
- D. Functional groups

Answer: C



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95. The reduction of  $RCOCl$  with  $H_2$ .  $Pd - BaSO_4$  would give

- A.  $R - CO - R$

B.  $RCOOH$

C.  $RCHO$

D.  $RCH_2OH$

**Answer: C**



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**96.** In electroplating copper with silver the bath solution used is of  $K[Ag(CN)_2]$  instead of  $AgNO_3$  because on account of complex formation.

A. A thinner coating of silver is obtained

B. Availability of  $Ag^+$  ions in solution is so reduced that they are not replaced by copper ions



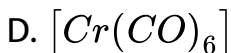
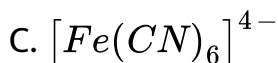
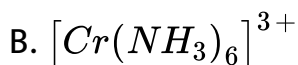
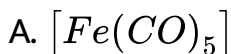
C.  $Ag^+$  ions are completely removed from the solution

D. Expense on electricity are reduced

**Answer: B**

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**97.** The atomic numbers of chromium and iron are 24 and 26 respectively. Which one of the following complexes exhibits paramagnetic character due to electronic spin?



**Answer: B**



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**98.** Enzymes are basically

- A. Edible proteins
- B. Carbohydrates
- C. Carbohydrates containing nitrogen
- D. Specially structured proteins

**Answer: D**



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