Sharath Gore

NEET mock test 1 (chemistry) 2022-23

Time : 75 Min	Chem : Full Portion Paper	Marks : 200

Hints and Solutions

01) Ans: **D)** Spread out between the structure
Sol: In graphite, electrons are spread out between the structure.

02) Ans: **B)** Lewis acid.
Sol: BF_3 accepts electron pair from NH_3, therefore it is Lewis acid.

03) Ans: **B)** Schotten-Baumann reaction.

04) Ans: **D)** gases.
Sol: In gases, molecular attraction is very less and inter-molecular spaces are large, therefore kinetic energy of gases is the highest.

05) Ans: **C)** tropopause
Sol: The point of temperature inversion between troposphere and ionosphere is known as tropopause. In the region lower to tropopause, temperature decreases with increase of altitude on the other hand in the region upper to tropopause temperature increases with increase of altitude.

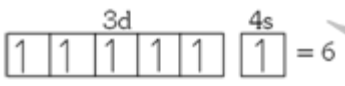
06) Ans: **C)** ZnS
Sol: In ZnS structure, sulphide ions occupy all FCC lattice points whereas Zn^{2+} ions are present in alternate tetrahedral voids.

07) Ans: **A)** $Ca(H_2PO_4)_2.H_2O + 2CaSO_4 . 2H_2O$
Sol: $Ca(H_2PO_4)_2.H_2O + 2CaSO_4 . 2H_2O$

08) Ans: **D)** Chlorophylls are green pigments in plants and contains calcium.
Sol: Chlorophyll are green pigment in plant and it contains magnesium instead of calcium.

09) Ans: **B)** Lactose

10) Ans: **A)** Cr
Sol: Electronic configuration of the Cr_{24} is $[Ar]\,4s^1 3d^5$ as



11) Ans: **B)** 2

Sol: From given, $R = K(A)^2, R' = K(2A)^2, \quad \therefore \frac{R'}{R} = 4$

and $R = K(A)^2, R' = K(3A)^2, \quad \therefore \frac{R'}{R} = 9$

12) Ans: **B)** there is increase in the nuclear charge of the alkaline earth metals.
Sol: The size of alkaline earth metals is smaller than its corresponding alkali metals and its effective nuclear charge is also more than that of its corresponding alkali metals.

13) Ans: **D)** power for pressure.
Sol: Fuel-cells are used to provide power as well as drinking water to astronauts in space program.

14) Ans: **D)** 1-chlorobutane.

15) Ans: **C)** Tertiary alcohol by S_N1.
Sol: In Lucas reagent test, turbidity appears immediately with tertiary alcohol by S_N1 mechanism.

16) Ans: **D)** Both (1) & (2)

17) Ans: **D)** all of these.
Sol: Dettol (antiseptic) is a mixture of 4.8% chloroxylenol + 9.9% terpineol along with absolute alcohol.

18) Ans: **A)** H_2Se
Sol: We have, $NH_3 = 107^\circ, PH_3 = 93^\circ, H_2O = 104.5^\circ$ and $H_2Se = 91^\circ$.

19) Ans: **D)** Mg

20) Ans: **C)** solute molecules and the total molecules in the solution.
Sol: Relative lowering of the vapour pressure of dilute solution is equal to the mole fraction of the solute molecule present in the solution.

21) Ans: **A)** $KMnO_4$
Sol: On oxidation with $KMnO_4$, they form different alcohols as

$$\underset{\text{npentane}}{CH_3CH_2CH_2CH_2CH_3} \xrightarrow[[O]]{KMnO_4} \underset{1^\circ \text{ alcohol}}{CH_3CH_2CH_2CH_2CHOH_2}$$

$$CH_3CH_2 - \underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}}H - CH_3 \xrightarrow[[O]]{KMnO_4}$$

$$CH_3CH_2 - \underset{\displaystyle CH_3}{\overset{\displaystyle OH}{\overset{\displaystyle |}{\underset{\displaystyle |}{C}}}} - C\ H_3 \quad (3^\circ \text{alcohol})$$

22) Ans: **D)** The statement 1 and statement 2 both are false.
Sol: From the Pauli exclusion principle, we know

that two electrons in the same atom can not have same value of all four quantum numbers. This means each electron in an atom has only one set of values for n, m, l and s . Thus both the Statement 1 and Statement 2 are false.

23) Ans: **A)** Cellophane

24) Ans: **D)** C^{4-}

Sol: C^{4-} has the largest radius because least nuclear charge per electron.

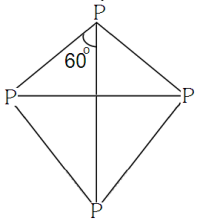
25) Ans: **A)** the number of mg of lyophilic colloid which should be added to 10 ml of standard gold sol so as to prevent its coagulation by the addition of 1 ml of 10% NaCl.

26) Ans: **B)** 2.5

Sol: 1 gram equivalent requires 1 F electricity. So, 2.5 F will deposit 2.5 gram equivalents.

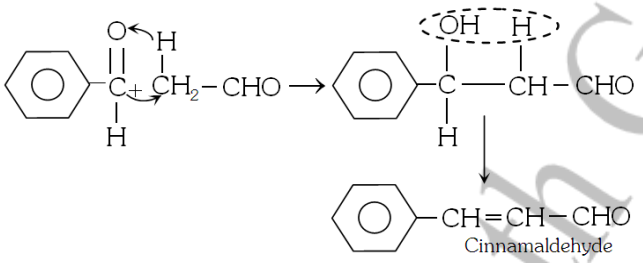
27) Ans: **D)** At the corners of tetrahedron.

Sol:



28) Ans: **B)** $C_6H_5CH=CHCHO$

Sol:



29) Ans: **D)** $HClO < HClO_2 < HClO_3 < HClO_4$

Sol: On increasing oxidation number, the acidic strength also increases.

30) Ans: **A)** The order of adsorption of A, B and C is

C > B > A.

Sol: As compound 'A' comes out before 'B' , 'B' is more readily adsorbed to the column and 'B' comes out before 'C', hence 'C' is more readily adsorbed than 'B' . Hence , the order of adsorption is C > B > A.

31) Ans: **A)** double salt.

32) Ans: **A)** - 103 kJ

Sol:

$$\underset{433+192}{H-H+Br-Br} \rightarrow \underset{2\times 364}{2H-Br}$$

$$\underset{625}{} \qquad \underset{728}{}$$

Here, Energy absorbed = Energy released

$\therefore$ Net energy released $= 728 - 625 = 103$ kJ

$\Delta H = -103$ KJ

33) Ans: **C)** Ni

Sol: Oxidation number of Ni changes from 0 to +1 .

34) Ans: **A)** $(CH_3)_3N$

Sol: Tertiary amine does not react with nitrous acid as there is no α-H atom in it.

35) Ans: **A)** Crystallisation of sucrose from solution

Sol: Crystallisation involves arrangement of molecules in a perfectly ordered manner i.e., minimum randomness.

36) Ans: **B)** van der Waal's force.

Sol: The van der waal's force is the weakest force of attraction.

37) Ans: **A)** liquid.

38) Ans: **C)** by heating white phosphorus with aqueous solution of caustic potash.

Sol: $\underset{\text{White}}{P_4} + 3NaOH + 3H_2O \rightarrow \underset{\text{Phosphine}}{PH_3} + 3NaH_2PO_2$

39) Ans: **A)** lipase.

40) Ans: **B)** Alizarin - S

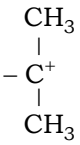
41) Ans: **D)** sodium-alumino silicate.

Sol: Lapis lazuli is the aluminium silicate present in earth rocks like blue stone.

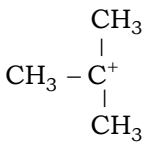
42) Ans: **C)** KCN

Sol: $K^+(C \equiv N)^-$

43) Ans: **C)**



Sol:



Because of (+I) effect of three methyl group, 3° carbocation is more stable.

44) Ans: **A)** 6.57 atm

Sol: Here,

$$\pi = CRT = \frac{3\times 1000}{180\times 60}\times 0.0821\times 288 = 6.57 \text{ atm}$$

45) Ans: **C)** 3.035%

Sol: $[H_2O_2 \rightarrow H_2O + \frac{1}{2}O_2]\times 2$

$\underset{68\text{ g}}{2H_2O_2} \rightarrow 2H_2O + O_2$ 22.4 litre at N.T.P.

As, 22.4 litre O_2 at N.T.P. obtained by 68 gm of

H_2O_2

$\therefore$ 10 litre O_2 at N.T.P. obtained by

$\frac{68}{22.4} \times 10 = 30.35$ gm / litre

$\therefore$ 1000 ml O_2 at N.T.P. obtained by = 30.35 gm

$\therefore$ 100 ml O_2 at N.T.P. obtained by

$= \frac{30.35}{1000} \times 100 = 3.035\%$

46) Ans: **C)** 273 K

Sol: The triple point of any substance is that temperature and pressure at which the material can exist in all three phases i.e. solid, liquid and gas in equilibrium specifically the triple point of water is $273.16\,K$ at $611.2\,Pa$.

47) Ans: **A)** $La(OH)_2$ is less basic than $Lu(OH)_3$.

Sol: $La(OH)_2$ is more basic than $Lu(OH)_3$ La^{2+} is larger in series size than Lu^{3+} so it has less polarising power and more ionic character which makes it more basic.

48) Ans: **A)** Atomic weight

49) Ans: **B)** low temperature and high pressure.

Sol: As per the Le-chatelier's principle.

50) Ans: **B)** Phenyl isocyanate

Sol: