

**KENDRIYA VIDYALAYA SANGATHAN, CHENNAI REGION**

**CLASS XII - REVISION – CHEMISTRY**

**SCORING KEY**

1. AgBr
2. Primary structure
3. Treat with ozone, followed by Zinc distillation
4.  $\text{PCl}_5 + \text{H}_2\text{O} \rightarrow \text{H}_3\text{PO}_4 + \text{HCl}$
5. Zero order reaction
6.  $t_{1/2} = 0.693/k$
7. Not polar enough to break the hydrogen bonds in water
8. Due to formation of F-centres
9.  $\text{CH}_4 > \text{CO} > \text{N}_2$  , higher the critical temperature, easier the liquifaction , easier the adsorption
10. The ratio of Cl : Cr is 3 : 1 or 1 : 1/3  
Let the no of sphere be N, so number of octahedral voids is also N. So the fraction of voids occupied would be 1/3. (1)  
There would be 2N tetrahedral voids, so fraction of total voids occupied 1/9 (1)
11. b) Since, with decrease in concentration molar conductivity increases as mobility of ions in the solution increases.(OR) correct definition with units (1+1)
12. a) Correct structure (1)  
b) 3 Hydroxy pentanoic acid (!)
13. a) No P-H bond in  $\text{H}_3\text{PO}_4$   
b) Ozone Oxidises Iodide Ions to iodine (1+1)
14. a)  $\text{Cu(I)} \rightarrow \text{Cu(II)} + \text{Cu}$ . It undergoes disproportionation  
b)  $\text{K}_2\text{Cr}_2\text{O}_7$  forms  $\text{K}_2\text{CrO}_4$ . In the presence of base (1+1)
15. a) Treat with Ammonia and heat followed by NaOH &  $\text{Br}_2$   
b) Treat with chloroform and KOH (1+1)
16. a) Aromatic halides have a double bond character between C& X due to resonance.  
b) Alkyl groups are electron releasing where as benzene ring is electron withdrawing,so electron density is more In aliphatic than aniline (1+1)

17. a) acetaldehyde reduces fehling's solution benzaldehyde does not

b) methanoic acid reduces tollen's reagent, ethanoic does not (1+1)

18. In A charge of Agl is negative & in B it is positive due to selective adsorption from the solution.

19.  $E = E_0 - .059/n \log K$  (1/2)

$$= 1.41 - .059/6 \times \log [Al^{3+}]^2 / [Ni^{2+}]^3 \quad (1/2)$$

$$= 1.41 - .059/6 \times \log (10^{-3})^2 / (.5)^3 \quad (1)$$

$$= 1.46 V \quad (1)$$

20.a) Because all positions are equivalent. (1)

b) correct splitting diagram- (1)



21. a) water undergoes reduction faster producing hydrogen

b) increased entropy increases spontaneity

c) the free energy of conversion of carbon to carbonmonoxide is more negative than carbonmonoxide to carbondioxide. (1+1+1)

22 a) para > meta , ortho due to more symmetry in para

b) I bromo butane > 2-methyl 1 bromobutane > 2- bromo butane > 2 methyl- 2-bromopropane

c)  $CH_3CH_2I$ , since I is a better leaving group (1+1+1)

23. correct explanation with correct example ( 1+1+1)

24. Initiate public campaign, segregate bio degradable and other waste

Any two harmful effects

Concern for the environment or any other suitable answer (1+1+1)

25.a) fructose b) intra molecular H bonds c) RNA is a single stranded molecule

(OR)

- a) phosphodiester linkage
  - b) starch is a linear polymer of alpha D – glucose, and cellulose is a linear polymer of beta – D- glucose
  - c) globular - albumin  
fibrous - keratin
- (+1+1+1)

26. a) The actinide contraction is greater than lanthanide contraction, because the 5f orbitals are poorer shielders than 4f

The actinides show multiple oxidation states because of less energy difference between 5f, 6d and 7s orbitals. (1+1)

b) Misch metal is a pyrophoric alloy, containing a large proportion of lanthanoid element and traces of other elements like iron, Al, etc used to make bullets. (1)

27.  $t = 2.303/k \log (R_0/R)$  (1/2)

$t_{\frac{3}{4}} = 2.303 /k \log ( R_0/ R_0/4)$  (1/2)

$= 2.303/K \log 4$

$= 2.303/k \times 2 \log 2$  (1/2)

$= 2 \times 2.303 \times \log 2/ k$  (1/2)

$t_{\frac{1}{2}} = 2.303 \times \log 2/k$  (1/2)

so  $t_{\frac{3}{4}} = 2 \times t_{\frac{1}{2}}$  (1/2)

28. a) correct definition (1)

Osmotic pressure, since increase or decrease in temperature can modify

the structure of the protein and hence alter its molecular mass (1)

b)  $(p_0 - p) / p_0 = (W_B / M_B) X(M_A / W_A)$  (1/2)

$25/100 = ( W_B/60 )X(18/100)$  (1/2)

$W_B = 83.33$  (1)

$m = 83.33/ 60 \times 1000/ 100$

$= 13.8m$  (1)

(OR)

a) correct derivation (2)

b) 20% KI 20g in 100g solution.

$$n = \frac{20}{166} = .12 \quad (1/2)$$

$$m = n/W_A \times 1000$$

$$= .12/80 \times 1000$$

$$= 1.5 \text{ m} \quad (1)$$

$$M = N_B / \text{volume of solution} \times 1000 \quad (1/2)$$

$$\text{Volume of solution} = \frac{100}{1.202} = .0832$$

$$= .12 / .1832 = 1.44 \text{ M} \quad (1)$$

29. a) A = S<sub>8</sub> B = H<sub>2</sub>S C = SO<sub>2</sub> D = SO<sub>3</sub> ( 1/2 + 1/2 + 1/2 + 1/2 )

Each correct equation (1+1+1)

(OR)

a) Each correct equation (1+1+1)

b) SF<sub>4</sub> –seesaw , XeF<sub>4</sub> -- square pyramid (1+1)

30.a) Correct reaction with 1 example (1+1+1)

b) Correct mechanism (2)

(OR)

a) Correct reaction with 1 example (1+1)

b) Ethanal to But-2-enal -- aldol condensation (1)

Benzaldehyde -- Cannizaros reaction (1)

c) Ethanal forms Ethane (1)

\*\*\*\*\*