CHEMISTRY

QUESTION SET-5

1. Which of the following oxides is amphoteric in character?

a) CaO   b)CO_2 c)SiO_2 d)SnO_2

2.The oxidation state of Cr in $[Cr(NH_3)_4Cl_2]^+$ is

a) +3   b)+2   c)+1   d)0

3. Hydrogen bomb is based on the principle of

a) nuclear fission   b)natural radioactivity

c) nuclear fusion   d)artificial radioactivity

4. An ionic compound has a unit cell consisting of A ions at the corners of a cube and B ions on the centres of the faces of the cube. The empirical formula for this compound would be

a)AB   b)AB_3 c)A_2B d)A_3B

5. Which of the following is a polyamide?

a)Teflon   b)nylon-66   c)terylene   d)Bakelite

6. Which one of the following types of drugs reduces fever?

a)analgesic   b) antipyretics

c)anti biotics   d)tranquiliser

7. The highest electrical conductivity of the following aqueous solution is of

a)0.1M acetic acid   b) 0.1M chloroacetic acid

c) 0.1M fluoroacetic acid   d)0.1M difluoroacetic acid

8. Aluminium oxide may be electrolysed at 1000^0c to furnish aluminium metal (at.mass =27amu,1 faraday =96,500coulomb.The cathode reaction is $Al^{3+}+3e^- \rightarrow Al^0$. To prepare 5.12 kg of aluminium metal by this method would require

a)5.49×10^7 C of electricity   b)1.83×10^7 C of electricity

c)5.49×10^4 C of electricity   d)5.59×10^{10} C of electricity

9. Consider the reaction $N_2+3H_2 \rightarrow 2NH_3$, carried out at constant tempreture and pressure. If ΔH and ΔU are the enthalpy and internal energy changes for the reaction, which of the following expression is true?

a)$\Delta H=0$ 　　　　　　　　　　　b)$\Delta H=\Delta U$

c)ΔH smaller than ΔU 　　　　d) ΔH greater than ΔU

10. Benzene and toluene form nearly ideal solutions.At 20 ^{0}C, the vapour pressure of benzene is 75 torr and that of toluene is 22 torr.The partial vapour pressure of benzene at 20^0 C for a solution containing 78g of benzene and 46 g of toluene in torr is

a)50 　　　　　　　　　b)25

c)37.5 　　　　　　　　d)53.5

11.A reaction involving two different reactants can never be

a)unimolecular reaction 　　　　b)first order reaction

c) second order reaction 　　　　d)bimolecular reaction

12. Heating mixture of Cu_2O and Cu_2S will give

a)$Cu+SO_2$ 　　　　　　　　b)$Cu+SO_3$

c)$CuO+CuS$ 　　　　　　　d)Cu_2SO_3

13. Which of the following compounds shows optical isomerism

a) $[Cu(NH_3)_4]^{2+}$ 　　　　　b) $[ZnCl_4]^{2-}$

c)$Cr(C_2O_4)_3]^{3-}$ 　　　　　d)$[Co(CN)_6]^{3-}$

14.2-Methylbutane on reacting with bromine in the presence of sunlight gives mainly

a)1-bromo-2-methylbutane 　　b)2-bromo-2-methylbutane

c) 2-bromo-3-methylbutane 　　d) 1-bromo-3-methylbutane

15. The best reagent to convert pent-3-en-2-ol into pent -3-en-2-one is

a)acid permanganate 　　　　　b)acidic dichromate

c)chromic anhydride in glacial acetic acid 　　d)pyridinium chloro chromate

16. Tertiary alkyl halides are practically inert to substitution by SN_2 mechanism because of

a)insolubility 　　　　　　　　b)instability

c)inductive effect   d)steric hinderance

17. Among the following acid which has the lowest pKa value?

a)CH_3COOH b)$HCOOH$

c)$(CH_3)_2CH-COOH$ d)CH_3CH_2COOH

18. Elimination of bromine from 2-bromobutane results in the formation of

a)equimolar mixture of 1 and 2-butene   b)predominantly 2- butane

c) predominantly 1- butane   d) predominantly 2- butyne

19. The value of the spin only magnetic moment for one of the following configuration is 2.84BM.The correct one is

a)d^4(in strong ligand field)   b)d^4(in weak ligand field)

c)d^3(in weak as well as in strong field) d)d^5 (in strong ligand field)

20. Equivalent weight of anhydrous oxalic acid is

a)45   b)54

c)36   d)60