Chemistry K CET – 2018 (Version F)

1. Which of the following is more basic than aniline?
   (A) Diphenylamine (B) Triphenylamine (C) p-nitroaniline (D) Benzylamine
   Ans (D)

2. The two forms of D-Glucopyranose are called
   (A) Diastereomers (B) Anomers (C) Epimers (D) Enantiomers
   Ans (B)

3. Among the following, the branched chain polymer is
   (A) Polyvinyl chloride (B) Bakelite
   (C) Low density polythene (D) High density polythene
   Ans (C)

4. Edge length of a cube is 300 pm. Its body diagonal would be
   (A) 600 pm (B) 423 pm (C) 519.6 pm (D) 450.5 pm
   Ans (C)

5. Which of the following is ***not*** a conductor of electricity?
   (A) Solid NaCl (B) Cu (C) Fused NaCl (D) Brine solution
   Ans (A)

6. For a cell reaction involving two electron changes, $E^{o}_{cell} = 0.3\ V$ at 25°C. The cell equilibrium constant of the reaction is
   (A) 10^{-10} (B) 3×10^{-2} (C) 10 (D) 10^{10}
   Ans (D)

7. The value of rate constant of a pseudo first order reaction
   (A) Depends only on temperature
   (B) Depends on the concentration of reactants present in small amounts
   (C) Depends on the concentration of reactants present in excess
   (D) Is independent of the concentration of reactants
   Ans (D)

8. $(CH_3)_3SiCl$ is used during polymerization of organosilicons because
   (A) The chain length of organosilicon polymers can be controlled by adding $(CH_3)_3SiCl$
   (B) $(CH_3)_3SiCl$ improves the quality and yield of the polymer
   (C) $(CH_3)_3SiCl$ does not block the end terminal of silicone polymer
   (D) $(CH_3)_3SiCl$ acts as a catalyst during polymerization
   Ans (A)

9. When PbO_2 reacts with concentrated HNO_3, the gas evolved is
   (A) NO_2 (B) O_2 (C) N_2 (D) N_2O
   Ans
   The reaction between PbO_2 and HNO_3 is unlikely. (as mentioned in NCERT) however PbO reacts with HNO_3.

10. $KMnO_4$ acts as an oxidising agent in alkaline medium. When alkaline $KMnO_4$ is treated with KI, iodide ion is oxidized to

(A) I_2 (B) IO^- (C) IO_3^- (D) IO_4^-

Ans (C)

11. $[Fe(NO_2)_3\ Cl_3]$ and $[Fe(O-NO)_3\ Cl_3]$ shows

(A) Linkage isomerism (B) Geometrical isomerism

(C) Optical isomerism (D) Hydrate isomerism

Ans (A)

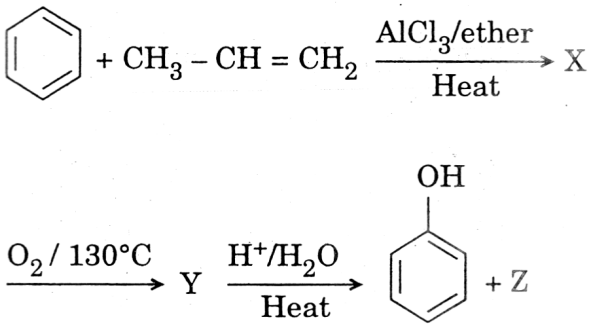
12. Tertiary alkyl halide is practically to substitution by S_N2 mechanism because of

(A) Insolubility (B) Instability

(C) Inductive effect (D) Steric hindrance

Ans (D)

13. The products X and Z in the following reaction sequence are



(A) Isopropylbenzene and acetone

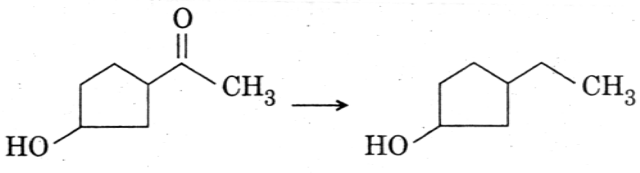
(B) Cumene peroxide and acetone

(C) Isopropylbenzene and isopropyl alcohol

(D) Phenol and acetone

Ans (A)

14. The appropriate reagent for the following transformation is



(A) Zn - Hg/HCl

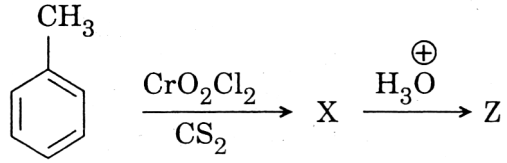
(B) $H_2N - NH_2$, KOH/ethylene glycol

(C) Ni/H_2

(D) $NaBH_4$

Ans (B)

15. In the following reaction



the compound Z is

(A) Benzoic acid (B) Benzaldehyde (C) Acetophenone (D) Benzene

Ans (B)

16. The reaction of Benzenediazonium chloride with aniline yields yellow dye. The name of the yellow dye is

(A) p-Hydroxyazobenzene (B) p-Aminoazobenzene

(C) p-Nitroazobenzene (D) o-Nitroazobenzene

Ans (B)

17. The glycosidic linkage involved in linking the glucose units in amylose part of starch is

(A) $C_1 - C_4$ – linkage (B) $C_1 - C_6$ α-linkage

(C) $C_1 - C_6$ β-linkage (D) $C_1 - C_4$ α-linkage

Ans (D)

18. Ziegler-Natta catalyst is used to prepare

(A) Low-density polythene (B) Teflon

(C) High density polythene (D) Nylon-6

Ans (C)

19. 1.0 g of Mg is burnt with 0.28 g of O_2 in a closed vessel. Which reactant is left in excess and how much?

(A) Mg, 5.8 g (B) Mg, 0.58 g (C) O_2, 0.24 g (D) O_2, 2.4 g

Ans (B)

20. The orbital nearest to the nucleus is

(A) 4f (B) 5d (C) 4s (D) 7p

Ans (C)

21. Which of the following is the correct order of radius?

(A) $H^- > H > H^+$ (B) $Na^+ > F^- > O^{2-}$ (C) $F^- > O^{2-} > Na^+$ (D) $Al^{3+} > Mg^{2+} > N^{3-}$

Ans (A)

22. The intramolecular hydrogen bond is present in

(A) Phenol (B) o-Nitrophenol (C) p-Nitrophenol (D) p-Cresol

Ans (B)

23. The state of hybrid orbitals of carbon in CO_2,CH_4 and CO_3^{2-} respectively is

(A) sp^3,sp^2 and sp (B) sp^3,sp and sp^2 (C) sp,sp^3 and sp^2 (D) sp^2,sp^3 and sp

Ans (C)

24. For an ideal gas, compressibility factor is

(A) 0 (B) 1 (C) – 1 (D) + 2

Ans (B)

25. The relationship between K_p and K_c is $K_p = K_c(RT)^{\Delta n}$. What would be the value of Δn for the reaction

$NH_4Cl(s) \rightleftharpoons NH_3(g) + HCl(g)$?

(A) 1 (B) 0.5 (C) 1.5 (D) 2

Ans (D)

26. Acidity of BF_3 can be explained on which of the following concepts?

(A) Arrhenius concept (B) Bronsted-Lowry concept

(C) Lewis concept (D) Bronsted-Lowry as well as Lewis concept

Ans (C)

27. For the redox reaction

$xMnO_4^- + yH_2C_2O_4 + zH^+ \longrightarrow mMn^{2+} + nCO_2 + pH_2O$

The values of x, y, m and n are

(A) 10, 2, 5, 2 5, 2, (B) 2, 5, 2, 10

(C) 6, 4, 2, 5 (D) 3, 5, 2, 10

Ans (B)

28. H_2O_2 is

(A) An oxidising agent (B) A reducing agent

(C) Both oxidising and reducing agent (D) Neither oxidising nor reducing agent

Ans (C)

29. Dead burnt plaster is

(A) $CaSO_4$ (B) $CaSO_4.\frac{1}{2}H_2O$ (C) $CaSO_4.H_2O$ (D) $CaSO_4.2H_2O$

Ans (A)

30. Identify the following compound which exhibits geometrical isomerism:

(A) But-2-ene (B) But-1-ene (C) Butane (D) Isobutane

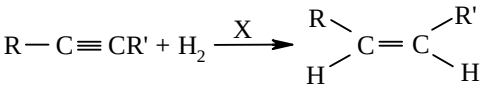
Ans (A)

31. During the fusion of organic compound with sodium metal, nitrogen present in the organic compound is converted into

(A) $NaNO_2$ (B) $NaNH_2$ (C) NaCN (D) NaNC

Ans (C)

32. The reagent ‘X’ used for the following reaction is



(A) Ni (B) Pd/C (C) $LiAlH_4$ (D) Na/Liquid NH_3

Ans (B)

33. Which of the following ions will cause hardness in water?
(A) Ca^{2+} (B) Na^{+} (C) Cl^{-} (D) K^{+}
Ans (A)

34. Which of the following oxides shows electrical properties like metals?
(A) SiO_2 (B) MgO (C) $SO_2(s)$ (D) CrO_2
Ans (D)

35. Which of the following aqueous solutions should have the highest boiling point?
(A) 1.0 M NaOH (B) 1.0 M Na_2SO_4 (C) 1.0 M NH_4NO_3 (D) 1.0 M KNO_3
Ans (B)

36. The charge required for the reduction of 1 mole of MnO_4^- to MnO_2 is
(A) 1 F (B) 3 F (C) 5 F (D) 7 F
Ans (B)

37. For the reaction, $2SO_2 + O_2 \rightleftharpoons 2SO_3$, the rate of disappearance of O_2 is 2×10^{-4} mol L^{-1} s^{-1}. The rate of appearance of SO_3 is
(A) 2×10^{-4} mol L^{-1} s^{-1} (B) 4×10^{-4} mol L^{-1} s^{-1}
(C) 1×10^{-1} mol L^{-1} s^{-1} (D) 6×10^{-4} mol L^{-1} s^{-1}
Ans (B)

38. Which of the following electrolytes will have maximum coagulating value for AgI/Ag^{+} sol?
(A) Na_2S (B) Na_3PO_4 (C) Na_2SO_4 (D) NaC1
Ans (D)

39. Electrolytic refining is used to purify which of the following metals?
(A) Cu and Zn (B) Ge and Si (C) Zr and Ti (D) Zn and Hg
Ans (A)

40. Dry ice is
(A) Solid CO (B) Solid SO_2 (C) Solid CO_2 (D) Solid O_2
Ans (C)

41. Which of the following is an amphoteric oxide?
(A) V_2O_5, Cr_2O_3 (B) Mn_2O_7, Cr_2O_3 (C) CrO, V_2O_5 (D) V_2O_5, V_2O_4
Ans (A)

42. The IUPAC name of $[Co(NH_3)_4\ Cl(NO_2)]Cl$ is
(A) tetraamminechloridonitrito-N-cobalt(III) chloride
(B) tetraamminechloridonitrocobalt(II) chloride
(C) tetraamminechloridonitrocobalt(I) chloride
(D) tetraamminechloridodinitrocobalt(III) chloride
Ans (A)

43. Which of the following statements is true in case of alkyl halides?
(A) They are polar in nature. (B) They can form hydrogen bonds
(C) They are highly soluble in water (D) They undergo addition reactions
Ans (A)

44. Phenol can be distinguished from ethanol by the reagent
(A) Bromine water (B) Sodium metal (C) Iron metal (D) Chlorine water
Ans (A)

45. Which of the following compounds undergoes haloform reaction?
(A) CH_3COCH_3 (B) HCHO (C) CH_3CH_2Br (D) $CH_3–O–CH_3$
Ans (A)

46. Which of the following will be the most stable diazonium salt $(R\ N_2^+\ X^-)$?
(A) $CH_3N_2^+X^-$ (B) $C_6H_5N_2^+X^-$ (C) $CH_3CH_2N_2^+X^-$ (D) $C_6H_5CH_2N_2^+X^-$
Ans (B)

47. Which of the following bases is not present in DNA?
(A) Adenine (B) Guanine (C) Cytosine (D) Uracil
Ans (D)

48. Which one of the following is a polyamide polymer?
(A) Terylene (B) Nylon-6,6 (C) Buna-S (D) Bakelite
Ans (B)

49. In F.C.C. the unit cell is shared equally by how many unit cells?
(A) 10 (B) 8 (C) 6 (D) 2
Ans (C)
The question is ambiguous.

50. At a particular temperature, the ratio of molar conductance to specific conductance of 0.01 M NaCl solution is
(A) $10^5\ cm^3\ mol^{-1}$ (B) $10^3\ cm^3\ mol^{-1}$ (C) $10\ cm^3\ mol^{-1}$ (D) $10^5\ cm^2\ mol^{-1}$
Ans (D)

51. Isotonic solutions are solutions having the same
(A) Surface tension (B) Vapour pressure (C) Osmotic pressure (D) Viscosity
Ans (C)

52. The temperature coefficient of a reaction is 2. When the temperature is increased from 30°C to 90°C, the rate of reaction is increased by
(A) 150 times (B) 410 times (C) 72 times (D) 64 times
Ans (D)

53. Gold sol is ***not*** a
(A) Lyophobic sol (B) Negatively charged sol
(C) Macromolecular sol (D) Multimolecular colloid
Ans (C)

54. The common impurity present in bauxite is
(A) CuO (B) ZnO (C) Fe_2O_3 (D) Cr_2O_3
Ans (C)

55. Very pure N_2 can be obtained by
(A) Thermal decomposition of ammonium dichromate
(B) Treating aqueous solution of NH_4Cl and $NaNO_2$
(C) Liquifaction and fractional distillation of liquid air
(D) Thermal decomposition of sodium azide
Ans (D)

56. Which of the following oxidation states is common for all lanthanides?
(A) + 2 (B) + 3 (C) + 4 (D) + 5
Ans (B)

57. The electronic configuration of transition element "X", is +3, oxidation state is $[Ar]3d^5$. What is its atomic number?
(A) 25 (B) 26 (C) 27 (D) 24
Ans (B)

58. n-Propyl chloride reacts with sodium metal in dry ether to give
(A) $CH_3–CH_2–CH_2–CH_2–CH_2–CH_3$ (B) $CH_3–CH_2–CH_3$
(C) $CH_3–CH_2–CH_2–CH_3$ (D) $CH_3–CH_2–CH_2–CH_2–CH_2–CH_2–CH_3$
Ans (A)

59. When the vapours of tertiary butyl alcohol are passed through heated copper at 573 K, the product formed is
(A) But-2-ene (B) 2-Butanone (C) 2-Methyl propene (D) Butanal
Ans (C)

60. What is the increasing order of acidic strength among the following?
(i) p-methoxy phenol (ii) p-methyl phenol (iii) p-nitro phenol
(A) ii < iii < i (B) iii < ii < i (C) i < ii < iii (D) i < iii < ii
Ans (C)

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