DEPARTMENT OF CHEMISTRY
KALLAKURICHI DT
ONE MARK TEST

CLASS: 12
SUBJECT: CHEMISTRY

MARKS: 50
TIME : 1 HOURS

NOTES: ANSWER ALL THE QUESTIONS

PART-1

1. Which of the following is used for concentrating ore in metallurgy?
   a) Leaching
   b) Roasting
   c) Froth floatation
   d) Both (a) and (c)
2. Extraction of gold and silver involves leaching with cyanide ion. silver is later recovered by
   a) Distillation
   b) Zone refining
   c) Displacement with zinc
   d) liquation
3. Considering Ellingham diagram, which of the following metals can be used to reduce alumina?
   a) Fe
   b) Cu
   c) Mg
   d) Zn
4. The incorrect statement among the following is
   a) Nickel is refined by Mond's process
   b) Titanium is refined by Van Arkel's process
   c) Zinc blende is concentrated by froth floatation
   d) In the metallurgy of gold, the metal is leached with dilute sodium chloride solution
5. In the commercial electro chemical process for aluminium extraction, electrolyte used is
   a) $Al(OH)_3$ and NaOH Solution
   b) An aqueous solution of $Al_3(SO_4)_3$
   c) A molten mixture of Al_2O_3 and Na_3AlF_6
   d) A molten mixture of Al_2O_3 and $Al(OH)_3$
6. The stability of +1 oxidation state increases in the sequence
   a) Al < Ga < In < Tl
   b) Tl < In < Ga < Al
   c) In < Tl < Ga < Al
   d) Ga< In < Al < Tl
7. The basic structural unit of silicates is
   a) $(SiO_3)^{-2}$
   b) $(SiO_4)^{-2}$
   c) $(SiO)^-$
   d) $(SiO_4)^{-4}$
8. Which of the following is not SP^2 hybridised?

a) Graphite b) graphene c) Fullerene d) dry ice

9. Which among the following is not a borane?
a) B_2H_6 b) B_3H_6 c) B_4H_{10} d) none of these

10. Which isotope is used as moderator in nuclear plant reactor?
a) $_5B^{10}$ b) $_5B^{11}$ c) $_5B^{9}$ d) $_6B^{10}$

11. Solid (A) reacts with strong aqueous NaOH liberating a foul smelling gas(B) which spontaneously burn in air giving smoky rings. A and B are respectively
a) P_4(red) and PH_3 b) P_4(white) and PH_3
c) S_8 and H_2S d) P_4(white) and H_2S

12. P_4O_6 reacts with cold water to give
a) H_3PO_3 b) $H_4P_2O_7$ c) HPO_3 d) H_3PO_4

13. XeF_6 on complete hydrolysis produces
a) $XeOF_4$ b) XeO_2F_2 c) XeO_3 d) XeO_2

14. When copper is heated with conc HNO_3 it produces
a) $Cu(NO_3)_2$, NO and NO_2 b) $Cu(NO_3)_2$ and N_2O
c) $Cu(NO_3)_2$ and NO_2 d) $Cu(NO_3)_2$ and NO

15. Which of the following compounds has an S-S bond?
a) $H_2S_2O_7$ b) H_2SO_5 c) $H_2S_2O_8$ d) $H_2S_2O_6$

16. Which one of the following ions has the same number of unpaired electrons as present in V_3.?
a) Ti^{3+} b) Fe^{3+} c) Ni^{2+} d) Cr^{3+}

17. Permanganate ion changes to _____ in acidic medium
a) MnO_4^{2-} b) Mn^{2+} c) Mn^{3+} d) MnO^{2-}

18. Which of the following oxidation states is most common among the lanthanoids?
a) 4 b) 2 c) 5 d) 3

19. Which one of the following is not correct?
a) $La(OH)_3$ is less basic than $Lu(OH)_3$
b) In lanthanoid series ionic radius of Ln_3. ions decreases
c) La is actually an element of transition metal series rather than lanthanide series
d) Atomic radii of Zr and Hf are same because of lanthanide contraction

20. The correct order E^0 (M^{2+}/M) values with negative sign for the four successive elements Cr,Mn,Fe,Co is
a) Fe>Mn>Cr>Co b) Cr>Mn>Fe>Co c) Mn>Cr>Fe>Co d) Cr>Fe>Mn>Co

21. An ionic compound A_xB_y crystallizes in fcc type crystal structure with B ions at the centre of each face and A ion occupying corners of the cube. the correct formula of AxBy is
a) AB b) AB_3 c) A_3B d) A_8B_6

22. The ionic radii of A^+ and B^- are 0.98×10^{-10}m and 1.81×10^{-10}.m . The coordination number of each ion in AB is
a) 8 b) 2 c) 6 d) 4

23. The yellow colour in NaCl crystal is due to
a) excitation of electrons in F centers b) reflection of light from Cl^- ion on the surface
c) refraction of light from Na^+ ion d) all of the above

24. Assertion : monoclinic sulphur is an example of monoclinic crystal system
Reason: for a monoclinic system, $a \neq b \neq c$ and $\alpha = \gamma = 90^0$ $\beta = 90^0$
a) Both assertion and reason are true and reason is the correct explanation of assertion.
b) Both assertion and reason are true but reason is not the correct explanation of assertion.
c) Assertion is true but reason is false.
d) Both assertion and reason are false.

25. Which is Covalent solid?
a) Silicate b) Diamond c) Graphite d) All of these

26. A zero order reaction X___ _Product , with an initial concentration 0.02M has a half life of 10 min. if one starts with concentration 0.04M, then the half life is
a) 10 s b) 5 min c) 20 min
d) cannot be predicted using the given information

27. The addition of a catalyst during a chemical reaction alters which of the following quantities?
a) Enthalpy b) Activation energy c) Entropy d) Internal energy

28. What is the activation energy for a reaction if its rate doubles when the temperature is raised from 200K to 400K? ($R = 8.314\ JK^{-1}mol^{-1}$)
a) 234.65 kJ mol^{-1} b) 434.65 kJ mol^{-1} c) 2.305 kJ mol^{-1} d) 334.65 J mol^{-1}

29. For a first order reaction, the rate constant is $6.909\ min^{-1}$.the time taken for 75% conversion in minutes is

a) (3/2) log 2 b) (2/3) log 2 c) (3/2) log (3/4) d) (2/3) log (4/3)

30. What is the rate law for acid hydrolysis of an ester such as CH_3COOCH_3 in aqueous solution?

a) k $[CH_3COOCH_3]$ b) k $[CH_3COOCH_3][H_2O]$ c) k $[CH_3COOCH_3]^2$ d) k

31. pH of a saturated solution of $Ca(OH)_2$ is 9. The Solubility product (K_{sp}) of $Ca(OH)_2$

a) 0.5×10^{-15} b) 0.25×10^{-15} c) 0.125×10^{-15} d) 0.5×10^{-15}

32. Conjugate base for Bronsted acids $H_2O$and HF are

a) OH^- and H_2FH^+, respectively b) H_3O^+ and F^-, respectively

c) OH^- and F^-, respectively d) H_3O^+ and H_2F^+, respectively

33. Which will make basic buffer?

a) 50 mL of 0.1M NaOH+25mL of 0.1M CH_3COOH
b) 100 mL of 0.1M CH_3COOH+100 mL of 0.1M NH_4OH
c) 100 mL of 0.1M HCl+200 mL of 0.1M NH_4OH
d) 100 mL of 0.1M HCl+100 mL of 0.1M NaOH

34. The aqueous solutions of sodium formate, anilinium chloride and potassium cyanide are respectively

a) acidic, acidic, basic b) basic, acidic, basic
c) basic, neutral, basic d) none of these

35. What will be the PH of a 10^{-8} M HCl solution?

a)8.0 b) 7.0 c) 6.98 d) 14.0

36. Which of the following compounds on reaction with methyl magnesium bromide will give tertiary alcohol.

a) benzaldehyde b) propanoic acid c) methyl propanoate d) acetaldehyde

37. Assertion : Phenol is more acidic than ethanol
Reason: Phenoxide ion is resonance stabilized

a) both assertion and reason are true and reason is the correct explanation of assertion.
b) both assertion and reason are true but reason is not the correct explanation of assertion.
c) assertion is true but reason is false d) both assertion and reason are false.

38. Isopropyl benzene on air oxidation in the presence of dilute acid gives

a) C_6H_5COOH b) $C_6H_5COCH_3$ c) $C_6H_5COC_6H_5$ d) C_6H_5 - OH

39. Williamson synthesis of preparing dimethyl ether is a / an /
a) SN_1 reactions b) SN_2 reaction
c) electrophilic addition d) electrophilic substitution

40. One mole of an organic compound (A) with the formula C_3H_8O reacts completely with two moles of HI to form X and Y. When Y is boiled with aqueous alkali it forms Z. Z answers the iodoform test. The compound (A) is
a) propan - 2-ol b) propan -1-ol c) ethoxy ethane d) methoxy ethane

41. Which one of the following reduces tollens reagent
a) formic acid b) acetic acid c) benzophenone d) none of these

42. Which one of the following reaction is an example of disproportionation reaction
a) Aldol condensation b) cannizaro reaction
c) Benzoin condensation d) none of these

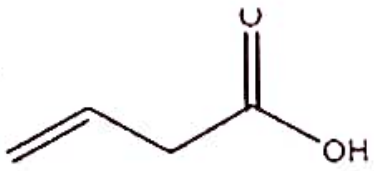
43. Reaction of acetone with one of the following reagents involves nucleophilic addition followed by elimination of water. The reagent is
a) Grignard reagent b) Sn / HCl
c) hydrazine in presence of slightly acidic solution d) hydrocyanic acid

44.

Benzoic acid $\xrightarrow[ii)\,\Delta]{i)\,NH_3}$ A $\xrightarrow{NaOBr}$ B $\xrightarrow{NaNO_2/HCl}$ C 'C' is

a) anilinium chloride b) O – nitro aniline
c) benzene diazonium chloride d) m – nitro benzoic acid

45.

The IUPAC name of 

a) but – 3- enoic acid b) but – 1- ene-4-oicacid
c) but – 2- ene-1-oic acid d) but -3-ene-1-oicacid

46. In the reaction sequence, Ethene _HOCl_> A _X__> ethan -1, 2 - diol . A and X respectively Are.
a) Chloroethane and NaOH b) ethanol and H_2SO_4

c) 2 – chloroethan -1-ol and $NaHCO_3$ d) ethanol and H_2O

47. Which one of the following is the strongest acid
a) 2 - nitrophenol b) 4 – chlorophenol
c) 4 – nitrophenol d) 3 – nitrophenol

48. When glycerol is heated with Con.H_2SO_4 to gives
a) Prop-2-enal b) acrolein c) allyl alcohol d) Both a & b

49. The formation of cyanohydrin from acetone is an example of
a) nucleophilic substitution b) electrophilic substitution
c) electrophilic addition d) Nucleophilic addition

50. ..... is used in the detection and estimation of -OH, NH2 groups in organic compounds.
a) Formic acid b) Acetic acid c) Acetyl Chloride d) Acetic anhydride

Part - I

1. d) Both (a) and (c).

2. c) Displacement with zinc.

3. c) Mg.

4. d) In the metallurgy of gold, the metal is leached with dilute sodium chloride solution.

5. [) A molten mixture of Al_2O_3 and Na_3AlF_6.

6. a) Al < Ga < In < Tl.

7. d) $(SiO_4)^{-4}$.

8. d) Dry ice.

9. b) B_3H_6.

10. b) $_5B^{11}$.

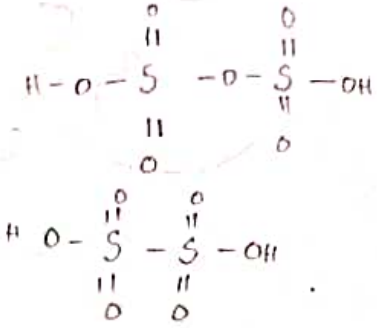
11. b) P_4 (white) and PH_3.

12. a) H_3PO_3.

13. c) XeO_3.

14. c) $Cu(NO_3)_2$ and NO_2.

15. d) $H_2S_2O_6$



16. c) Ni^{2+}.

17. b) Mn^{2+}.

18. d) 3.

19. a) $La(OH)_3$ is less basic than $Lu(OH)_3$.

20. c) Mn > Cr > Fe > Co.

21. b) AB_3.

22. c) 6.

23. a) Excitation of electrons in F centers.

24. a) Both assertion and reason are true and reason is the correct explanation of assertion.

25. d) All of these.

26. c) 20 min.

27. b) Activation energy.

28. c) 2.305 kJ mol^{-1}.

29. b) $(\frac{2}{3})\log 2$.

30. a) $k[CH_3COOCH_3]$.

31. a) 0.5×10^{-15}.

32. c) OH^- and F^-, respectively.

33. c) 100 mL of 0.1M HCl + 200 mL of 0.1M NH_4OH.

34. b) Basic, acidic, basic.

35. [redacted] C) 6.98

$[HCl] = 10^{-8}$

$pH = -\log_{10} 10^{-8}$

36. c) Methyl propanoate.

37. a) Both assertion and reason are true and reason is the correct explanation of assertion.

38. d) C_6H_5-OH.

39. b) SN_2 reaction.

40. d) Methoxy ethane.

41. a) Formic acid.

42. b) Cannizaro reaction.

43. c) Hydrazine is presence of slightly acidic solution.

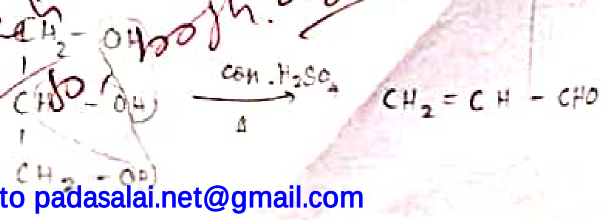
44. c) Benzene diazonium chloride.

45. a) But-3-enoic acid.

46. c) 2-chloroethan-1-ol and $NaHCO_3$.

47. c) p-nitrophenol.

48. a) - Prop-2-enal.



49. d) Nucleophilic addition.

50. c) Acetyl chloride.