XII-OT-24 CHE-1

Name: Section: Reg.No

One Mark Test - 1

Standard XII

CHEMISTRY

Time: 1.00 hr. Marks: 50

Choose the correct answer: 50x1=50

1. The incorrect statement among the following is
   a) Nickel is refined by Mond's process
   b) Zinc blende is concentrated by froth floation
   c) In the metallurgy of gold, the metal is leached with dilute sodium chloride solution
   d) Titanium is refined by Van Arkel's process ☐
2. Which is one of the following ores best concentrated by froth floation method?
   a) Megnetite b) Haematite c) Galena d) Cassiterite ☐
3. Flux is a substance which is used to convert
   a) mineral into silicate b) Infusible impurities to soluable
   c) Soluable impurities to infusible impurities d) All of these ☐
4. Which of the following plot gives Ellingham diagram.
   a) ΔS Vs T b) ΔG^0 Vs T c) ΔG^0 Vs $\frac{1}{T}$ d) ΔG^0 Vs T^2 ☐
5. $Zr\,(Impure) + 2I_2 \xrightarrow{523K} ZrI_4$

   $ZrI_4 \xrightarrow{1800K} Zr\,(Pure) + 2I_2$. This method of refining zirconium is known as
   a) Liquation b) Van Arkel process c) Zone refining d) Mond's process ☐
6. Which of the following is not thermodynamically feasible?
   a) $Cr_2O_3 + 2A\ell \rightarrow A\ell_2O_3 + 2Cr$ b) $A\ell_2O_3 + 2Cr \rightarrow Cr_2O_3 + 2A\ell$
   c) $3TiO_2 + 4A\ell \rightarrow 2A\ell_2O_3 + 3Ti$ d) None of these ☐
7. Which of the metal is extracted by Hall - Heroult process?
   a) Al b) Ni c) Cu d) Zn ☐
8. Which one of the following is not feasible?
   a) $Zn_{(s)} + Cu^{2+}{}_{(aq)} \rightarrow Cu_{(s)} + Zn^{2+}{}_{(aq)}$ b) $Cu_{(s)} + Zn^{2+}{}_{(aq)} \rightarrow Zn_{(s)} + Cu^{2+}{}_{(aq)}$
   c) $Cu_{(s)} + 2Ag^{+}{}_{(aq)} \rightarrow 2Ag_{(s)} + Cu^{2+}{}_{(aq)}$ d) $Fe_{(s)} + Cu^{2+}{}_{(aq)} \rightarrow Cu_{(s)} + Fe^{2+}{}_{(aq)}$ ☐
9. The metal oxide which cannot be reduced to metal by carbon is .....
   a) PbO b) $A\ell_2O_3$ c) ZnO d) FeO ☐
10. Considering Ellingham diagram, which metal can be used to reduec alumina?
    a) Fe b) Cu c) Mg d) Zn ☐
11. Electro chemical process is used to extract
    a) Iron b) Lead c) Sodium d) Silver ☐
12. $CaO_{(s)} + SiO_{2(s)} \rightarrow CaSiO_{3(s)}$ which is used as flux?
    a) CaO b) SiO_2 c) $CaSiO_3$ d) None of these ☐

13. The gas evolves during the formation of blister copper is .....
a) CO_2 b) O_2 c) SO_3 d) SO_2

14. Extraction of Gold and Silver involves leaching with $\overline{CN}$ ion. Silver is later recovered by
a) distillation b) zone refining
c) displacement with zinc d) liquation

15. In the extraction of copper from its sulphide ore, the metal is obtained by the reduction of ..... with cuprous oxide.
a) Copper I Sulphide b) Sulphur di oxide c) Iron II sulphide d) Carbon monoxide

16. In the purification of silver by electrolytic refining the electrolyte used is
a) Acidified $AgC\ell$ solution b) Alkaline $AgC\ell$ solution
c) Alkaline $AgNO_3$ solution d) Acidfied $AgNO_3$ solution

17. Which metal is used in artificial limb joints?
a) Iron b) Gold c) Nickel d) Zinc

18.

Ore	*Metal*
(A) Proustite	(i) Copper
(B) Cerrusite	(ii) Iron
(C) Azurite	(iii) Silver
(D) Siderite	(vi) Lead

Choose the correct answer from the options given below:
a) (A) - (ii), (B) - (i), (C) - (iv), (D) - (iii) b) (A) - (iv), (B) - (i), (C)- (iii), (D) - (ii)
c) (A) - (iv), (B) - (ii), (C) - (iii), (D) - (i) d) (A) - (iii), (B) - (iv), (C) - (i), (D) - (ii)

19. The stability of +1 oxidation state increases in the sequence
a) $A\ell < Ga < In < T\ell$ b) $T\ell < In < Ga < A\ell$
c) $In < T\ell < Ga < A\ell$ d) $Ga < In < A\ell < T\ell$

20. Duralumin is an alloy of
a) Cu, Mn b) Cu, $A\ell$, Mg c) $A\ell$, Mn d) $A\ell$, Cu, Mn, Mg

21. The element that does not show catenation among the following p - block element is
a) Carbon b) Silicon c) Lead d) Germanium

22. Which of the following statement is not correct?
a) Beryl is a cyclic silicate b) Mg_2SiO_4 is an orthosilicate
c) SiO_4^{4-} is the basic structural unit of silicates d) Feldspar is not aluminosilicate

23. Which metal has the largest abundance in the earth's crust?
a) Aluminium b) Calcium c) Magnesium d) Sodium

24. The geometry at which carbon atom in diamond are bonded to each other is
a) Tetrahedral b) Hexagonal c) Octahedral d) None of these

25. Carbon atoms in fullerene with the formula C_6O have .....
a) sp^3 hybridised b) sp hybridised
c) sp^2 hybridised d) partially sp^2 and partially sp^3 hybridised

26. Boric acid is an acid, because its molecule

a) contains replaceable H^+ ion b) gives up a proton

c) combines with proton to form water molecule d) accepts OH^- from water, releasing proton

27. Match the List I with List II and write the correct code given below.

List I		List II	
A)	Borazole	1)	$B(OH)_3$
B)	Boric acid	2)	$B_3N_3H_6$
C)	Quartz	3)	$Na_2[B_4O_5(OH)_4]8H_2O$
D)	Borax	4)	SiO_2

Code :	A	B	C	D
a)	2	1	4	3
b)	1	2	4	3
c)	3	1	2	4
d)	4	3	2	1

28. Producer gas is a mixture of

a) $CO + H_2$ b) $CO + N_2$ c) $CO + C\ell_2$ d) $CO + O_2$

29. The order of atomic radii of group 13 elements is

a) $B < A\ell < In < Ga < T\ell$ b) $B < A\ell < Ga < In < T\ell$

c) $B < Ga < A\ell < T\ell < In$ d) $B < Ga < A\ell < In < T\ell$

30. Which element has the capacity to absorb neutrons?

a) Boron b) Carbon c) Aluminium d) Silicon

31. The type of hybridisation of Boron in diborane is

a) sp^2 b) sp^3 c) sp d) sp^3d^2

32. The basic structural unit of silicates is

a) SiO_3^{2-} b) SiO_4^{2-} c) SiO^- d) SiO_4^{4-}

33. If 'a' is the edge length of the cubic system in sc, bcc, fcc then the ratio of radii of spheres in these systems will be

a) $\frac{1}{2}a : \frac{\sqrt{3}}{2}a : \frac{\sqrt{2}}{2}a$ b) $\sqrt{1a} : \sqrt{3a} : \sqrt{2a}$

c) $\frac{1}{2}a : \frac{\sqrt{3}}{4}a : \frac{1}{2\sqrt{2}}a$ d) $\frac{1}{2}a : \sqrt{3}a : \frac{1}{\sqrt{2}}a$

34. The crystal with a metal deficiency defect is

a) $NaC\ell$ b) FeO c) ZnO d) $KC\ell$

35. If 'a' is the length of the side of the cube, the distance between the body centered atom and one corner atom in the cube will be

a) $\frac{2}{\sqrt{3}}a$ b) $\frac{4}{\sqrt{3}}a$ c) $\frac{\sqrt{3}}{4}a$ d) $\frac{\sqrt{3}}{2}a$

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

37. The fraction of total volume occupied by the atoms in a simple cubic is
a) $\left(\frac{\pi}{4\sqrt{2}}\right)$ b) $\left(\frac{\pi}{6}\right)$ c) $\left(\frac{\pi}{4}\right)$ d) $\left(\frac{\pi}{3\sqrt{2}}\right)$

38. Assertion : Monoclinic sulphur is an example monoclinic crystal system.
Reason : For a monoclinic system, $a \neq b \neq c$ and $\alpha = \gamma = 90°, \beta \neq 90°$.
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 the assertion.
c) Assertion is true but reason is false. d) Both assertion and reason are false.

39. The radius of an atom is 300 pm. If it crystallizes in a fcc lattice, the length of the edge of the unit cell is
a) 488.5 pm b) 848.5 pm c) 884.5 pm d) 484.5 pm

40. The ratio of close packed atoms to tetrahedral hole in cubic packing is
a) 1 : 1 b) 1: 2 c) 2 : 1 d) 1 : 4

41. A solid compound XY has NaCl structure. If the radius of the cation is 100 pm, the radius of anion will be
a) $\frac{100}{0.414}$ b) $\frac{0.732}{100}$ c) 100×0.414 d) $\frac{0.414}{100}$

42. The number of unit cells in 8gm of an element X (at. mass, 40) which crystallizes in bcc pattern is (NA is avogadro number)
a) 6.023×10^{23} b) 6.023×10^{22} c) 60.23×10^{23} d) $\frac{6.023 \times 10^{23}}{8 \times 40}$

43. $CsC\ell$ has bcc arrangement, its unit cell edge length is 400 pm. its interatomic distance is
a) 400 pm b) 800 pm c) $\sqrt{3} \times 100$pm d) $\frac{\sqrt{3}}{2} \times 400$pm

44. Example for hydrogen bonded molecular solid
a) NH_3 b) Urea c) Napthalein d) Anthracene

45. The system with edge lengths $a = b \neq c$ and edge angles $\alpha = \beta = \gamma = 90°$ is
a) Cubic b) Rhombohedral c) Hexagonal d) Tetragonal

46. The unoccupied empty space percentage in bcc system is
a) 68% b) 47.62% c) 32% d) 23%

47. In an Ionic compound, the ratio between the radius of cation and anion is 0.326. Then its structure is
a) Cubic b) Octahetral c) Trigonal pyramided d) Tetrahedral

48. In the following ionic compounds, which has the longest distance between the centres of anion and cation
a) Cs I b) Cs F c) Li F d) Li I

49. Incorrect statement about schottky defect
a) It is present in $NaC\ell$ crystal
b) This effect doesnot change the stoichiometry of the crystal
c) Ionic solids having large difference in the sizes of cation and anion show this defect
d) This defect arises due to the missing of equal number of cations and anions from the crystal lattice

50. If the number of close packed spheres is 4, then the number of octahedral voids and tetrachedral voids are
a) 4, 8 b) 8, 4 c) 6, 12 d) 12, 6

XII-OT-24 CHE-2

Name: Section: Reg.No

One Mark Test - 2

Standard XII

CHEMISTRY

Time: 1.00 hr. Marks: 50

50x1=50

Choose the correct answer:

1. The correct order for bond dissociation enthalpy of halogen molecules
   a) $Br_2 > I_2 > F_2 > C\ell_2$ b) $F_2 > C\ell_2 > Br_2 > I_2$
   c) $I_2 > Br_2 > C\ell_2 > F_2$ d) $C\ell_2 > Br_2 > F_2 > I_2$ ☐
2. Most easily liquefiable gas is
   a) Ar b) Ne c) He d) Kr ☐
3. When copper is heated with con. HNO_3 it produces
   a) $Cu(NO_3)_2, NO, NO_2$ b) $Cu(NO_3)_2, N_2O$
   c) $Cu(NO_3)_2, NO_2$ d) $Cu(NO_3)_2, NO$ ☐
4. Which of the following is strongest acid among all?
   a) HI b) HF c) HBr d) HCl ☐
5. The correct order of thermal stability of hydrogen halides is
   a) $HI > HBr > HC\ell > HF$ b) $HF > HC\ell > HBr > HI$
   c) $HC\ell > HF > HBr > HI$ d) $HI > HC\ell > HF > HBr$ ☐
6. An element belongs to group 15 and 3rd period of the periodic table, its electronic configuration would be
   a) $1s^2 2s^2 2p^4$ b) $1s^2 2s^2 2p^3$
   c) $1s^2 2s^2 2p^6 3s^2 3p^2$ d) $1s^2 2s^2 2p^6 3s^2 3p^3$ ☐
7. 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 ☐
8. The correct order of acidity is
   a) $HC\ell O_2 < HC\ell O < HC\ell O_3 < HC\ell O_4$ b) $HC\ell O_4 < HC\ell O_2 < HC\ell O < HC\ell O_4$
   c) $HC\ell O_3 < HC\ell O_4 < HC\ell O_2 < HC\ell O$ d) $HC\ell O < HC\ell O_2 < HC\ell O_3 < HC\ell O_4$ ☐
9. The basicity of pyrophosphorous acid ($H_4P_2O_5$) is
   a) 4 b) 2 c) 3 d) 5 ☐
10. Which is true regarding nitrogen?
    a) least electronegative element b) has low ionisation enthalpy than oxygen
    c) d orbitals available d) ability to form $p\pi - p\pi$ bonds with itself ☐
11. Which is wrongly matched?
    a) XeF_2 - sp^3d
    b) XeF_4 - sp^3d^2
    c) XeF_6 - sp^3d
    d) XeO_3 - sp^3 ☐

12. Which is used in filling air balloons?
a) Helium b) Neon c) Argon d) Xenon

13. The molecular formula of bleaching powder is
a) $CaC\ell_2$ b) $HOC\ell_2$ c) $CaOC\ell_2$ d) $CaOC\ell$

14. How many π bonds are there in Pyrosulphuric acid ($H_2S_2O_7$)?
a) 3 b) 2 c) 0 d) 4

15. The shape of ammonia is
a) Pyramidal b) Trigonal bipyramidal
c) Tetrahedral d) Square plannar

16. In group 15, the metalloids are
a) Bi, As b) P, As c) Sb, N d) As, sb

17. The actinoid elements which show the highest oxidation state of +7 are
a) Np, Pu, Am b) U, fm, Th c) U, Th, Md d) Es, NO, Lr

18. How many moles of I_2 are liberated when 1 mole of potassium dichromate react with Potassium Iodide?
a) 1 b) 2 c) 3 d) 4

19. Which of the following statements is not true?
a) On passing H_2S, through acidified $K_2Cr_2O_7$ solution, a milky colour is observed.
b) $Na_2Cr_2O_7$ is preferred over $K_2Cr_2O_7$ in volumetric analysis.
c) $K_2Cr_2O_7$ solution in acidic medium is orange in colour.
d) $K_2Cr_2O_7$ solution becomes yellow on increasing p^H beyond 7.

20. Which of the following lanthanoid ions is diamagnetic?
a) Eu^{2+} b) Yb^{2+} c) Ce^{2+} d) Sm^{2+}

21. The correct order of increasing oxidizing power in the series
a) $VO_2^+ < Cr_2O_7^{2-} < MnO_4^-$ b) $Cr_2O_7^{2-} < VO_2^+ < MnO_4^-$
c) $Cr_2O_7^{2-} < MnO_4^- < VO_2^+$ d) $MnO_4^- < Cr_2O_7^{2-} < VO_2^+$

22. Which is incorrect statement related to lanthanons?
a) Europium shows +2 oxidation state.
b) The basicity decreases as the ionic radius decreases from Pr to Lu
c) All the lanthanons are much more reactive than aluminium.
d) Ce^{4+} solutions are widely used as oxidising agents in volumetric analysis.

23. The magnetic moment of Mn^{2+} ion is
a) 5.92 BM b) 2.80BM c) 8.95 BM d) 3.90 BM

24. The catalytic behaviour of transition metals and their compounds is ascribed mainly due to
a) their magnetic behaviour b) their unfilled of orbitals
c) then ability to adopt variable oxidation states d) their chemical reactivity

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

26. Which of the following d block element has half filled penultimate d subshell as well as half filled valence sub shell?
a) Cr b) Pd c) Pt d) None of these

27. Which element has more oxidation states?
a) Cr b) Mn c) Fe d) V

28. Which of the following ion has d^5 configuration?
a) Ni^{2+} b) Cu^{+} c) CO^{2+} d) Mn^{2+}

29. The colour of UO_2^{2+} ion is
a) Yellow b) Red c) Green d) colourless

30. The oxidation state of Lr is
a) +3, +4 b) +3, +4, +5 c) +2, +3, +4, +5 d) +3

31. $K_2Cr_2O_7$ on heating gives
a) Cr_2O_3 b) K_2CrO_4 c) O_2 d) (a), (b), (c) all

32. Which of the following ion has 3 unpaired electrons?
a) CO^{2+} b) Ni^{2+} c) Fe^{2+} d) Mn^{2+}

33. A radio active element decreases from its inital concentration by $\frac{1}{16}$ in 2 hrs. What is its half life period?
a) 60 min b) 120 min c) 30 min d) 15 min

34. The rate constant of a reaction is $5.8\times10^{-2}S^{-1}$. The order of the reaction is
a) first order b) zero order c) second order d) third order

35. Assertion : rate of the reaction doubles when the concentration of the reaction doubles if it is a first order reaction.
Reason : rate constant also doubles.
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

36. If 75% of a first order reaction was completed by 60mts 50% of the same reaction under the same conditions would be completed in
a) 20 mts b) 30 mts c) 35 mts d) 75 mts

37. If the initial concentration of the reactant is doubled, the time for half reaction is also doubled. Then the order of the reaction is
a) zero b) one c) fraction d) none

38. In the decomposition of H_2O_2 to give O_2 48g of O_2 is formed per minute at certain point of time. The rate of formation of water at this point is
a) $0.75\,mol\,min^{-1}$ b) $1.5\,mol\,min^{-1}$ c) $2.25\,mol.min^{-1}$ d) $3.0\,mol.min^{-1}$

39. The rate constant for a first order reaction is $6.909\,min^{-1}$. What is the time taken for 75% conversion in minutes?
a) $\left(\frac{3}{2}\right)\log_2$ b) $\left(\frac{2}{3}\right)\log_2$ c) $\left(\frac{3}{2}\right)\log\left(\frac{3}{4}\right)$ d) $\left(\frac{2}{3}\right)\log\left(\frac{4}{3}\right)$

40. $X \rightarrow$ products is a zero order reaction with the initial concentration 0.02M and half life period of 10mts. If one starts with the concentration 0.04M, then the half life period is
a) 10 sec b) 5 min
c) 20 min d) cannot be predicted

XII-OT-24 CHE-3

Name: Section: Reg.No

One Mark Test - 3

Standard XII

CHEMISTRY

Time: 1.00 hr. Marks: 50

Choose and write the correct answer: 50x1=50

1. Which of the following has the magnetic moment of 1.73BM?
   a) $TiC\ell_4$ b) $[CoC\ell_6]^{4-}$ c) $[Cu(NH_3)]^{2+}$ d) $[Ni(CN)_4]^{2-}$ ☐
2. How many geometrical isomers are possible for $[Pt(Py)(NH_3)(Br)(C\ell)]$?
   a) 3 b) 4 c) 0 d) 15 ☐
3. IUPAC name of the complex $K_3[A\ell(C_2O_4)_3]$ is
   a) Potassium trioxalato aluminium (III) b) Potassium trioxalato aluminate (II)
   c) Potassium trisoxalato aluminate (III) d) Potassium trioxalato aluminate (III) ☐
4. Which of the following is paramagnetic in nature?
   a) $[Zn(NH_3)_4]^{2+}$ b) $[Co(NH_3)_6]^{3+}$ c) $[Ni(H_2O)_6]^{2+}$ d) $[Ni(CN)_4]^{2-}$ ☐
5. The type of isomerism exhibited by $[Pt(NH_3)_2C\ell_2]$
   a) coordination isomerism b) linkage isomerism
   c) optical isomerism d) geometrical isomerism ☐
6. Oxidation state of Iron and the change of the ligand NO in $[Fe(H_2O)_5NO]SO_4$ are ..... respectively.
   a) +2, 0 b) +3, 0 c) +3, –1 d) +1, +1 ☐
7. A complex which has the oxidation number zero for the metal atom
   a) $K_4[Fe(CN)_3(NH_3)_3]$ b) $[Fe(CN)_3(NH_3)_3]$
   c) $[Fe(CO)_5]$ d) both (a) and (c) ☐
8. In which of the following, the magnitude of Δ_0 will be maximum?
   a) $[Co(CN)_6]^{3-}$ b) $[Co(C_2O_4)_3]^{3-}$ c) $[Co(H_2O)_6]^{3+}$ d) $[Co(NH_3)_6]^{3+}$ ☐
9. The sum of primary, secondary valence of the metal 'M' in the complex $[M(en)_2(Ox)]C\ell$ is
   a) 3 b) 6 c) – 3 d) 9 ☐
10. Crystal field stabilization energy for high spin d^5 octahedral complex is
    a) $-0.6\Delta_0$ b) 0 c) $2(P-\Delta_0)$ d) $2(P+\Delta_0)$ ☐
11. Fac - mer isomerism is shown by
    a) $[Co(en)_3]^{3+}$ b) $[Co(NH_3)_4(C\ell)_2]^{+}$
    c) $[Co(NH_3)_3(C\ell)_3]$ d) $[Co(NH_3)_5C\ell]SO_4$ ☐
12. Which of the following is wrongly matched?
    a) $[CuC\ell_4]^{2-}$ - 1 unpaired electron
    b) $[Fe(H_2O)_6]^{2+}$ - 5 unpaired electron
    c) $[CoF_6]^{3-}$ - 4 unpaired electron
    d) $[Zn(NH_3)_6]^{2+}$ - Diamagnetic ☐

13. Which of the following has tetrahedral shape?
a) $[PdC\ell_4]^{2-}$ b) $[Ni(CN)_4]^{2-}$ c) $[Pd(CN)_4]^{2-}$ d) $[NiC\ell_4]^{2-}$

14. Which ion has a magnetic moment of 2.83 BM ? (Ti = 22, Cr = 24, Mn = 25, Ni = 28)
a) Ti^{3+} b) Ni^{2+} c) Cr^{3+} d) Mn^{2+}

15. $[Co(NH_3)C\ell_2]^+$ this formula has two types of coloured complexes, because of
a) Linkage isomerism b) Geometrical isomerism (cis - trans)
c) Coordination isomerism d) Ionisation isomerism

16. Which is correct for degree of hydrolysis of Ammonium acetate?
a) $h = \sqrt{\frac{K_h}{C}}$ b) $h = \sqrt{\frac{K_a}{K_b}}$ c) $h = \sqrt{\frac{K_h}{K_a.K_b}}$ d) $h = \sqrt{\frac{K_a.K_b}{K_h}}$

17. Which flouro compound is most likely to behave as a Lewis base?
a) BF_3 b) PF_3 c) CF_4 d) SiF_4

18. What is the pH of the resulting solution, when equal volumes of 0.1M NaOH and 0.01M $HC\ell$ are mixed?
a) 2.0 b) 3 c) 7.0 d) 12.65

19. Concentration of Ag^+ ions in a saturated solution of $Ag_2C_2O_4$ is 2.24×10^{-4} mol L^{-1}, then the solubility of $Ag_2C_2O_4$ is
a) 2.42×10^{-4} mol^3L^{-3} b) 2.66×10^{-12} mol^3L^{-3}
c) 4.5×10^{-11} mol^3L^{-3} d) 5.619×10^{-12} mol^3L^{-3}

20. Dissociation constant of NH_4OH is 1.8×10^{-3} the hydrolysis constant of $NH_4C\ell$ would be
a) 1.8×10^{-19} b) 5.55×10^{-10} c) 5.55×10^{-5} d) 1.80×10^{-5}

21. The pH of 10^{-5} M KOH solution is
a) 9 b) 5 c) 19 d) none of these

22. The aqueous solution 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

23. For which of the mixture, the pH will be equal to 1?
a) $60m\ell\frac{M}{10}HC\ell + 40m\ell\frac{M}{10}NaOH$ b) $55m\ell\frac{M}{10}HC\ell + 45m\ell\frac{M}{10}NaOH$
c) $75m\ell\frac{M}{5}HC\ell + 25m\ell\frac{M}{5}NaOH$ d) $100m\ell\frac{M}{10}HC\ell + 100m\ell\frac{M}{10}NaOH$

24. If the soluability product of Lead iodide is 3.2×10^{-8}, its solubility will be
a) 2×10^{-3} M b) 4×10^{-4} M c) 1.6×10^{-5} M d) 1.8×10^{-5} M

25. Conjugate base for Bronsted acids H_2O and HF are ..... respectively.
a) OH^-, H_2FH^+ b) H_3O^+, F^- c) OH^-, F^- d) H_3O^+, H_2F^+

26. The solubility of $AgC\ell(s)$ with solubility product 1.6×10^{-10} in 0.1M $NaC\ell$ solution would be

a) 1.26×10^{-5}M b) 1.6×10^{-9}M c) 1.6×10^{-11}M d) zero

27. The pH of an aqueous solution is zero. The solution is

a) slightly acidic b) strongly acidic c) neutral d) basic

28. The solubility of $BaSO_4$ in water is $2.42\times10^{-3}gL^{-1}$ at 298K. The value of its solubility product (K_{sp}) will be (molar mass of $BaSO_4 = 233g\ mol^{-1}$)

a) $1.08\times10^{-14}mol^2L^{-2}$ b) $1.08\times10^{-12}mol^2L^{-2}$

c) $1.08\times10^{-10}mol^2L^{-2}$ d) $1.08\times10^{-8}mol^2L^{-2}$

29. In $H_2O + X \rightleftharpoons NH_4^+ + Y$, what are X, Y?

a) NH_2, H_2O b) NH_3, OH^- c) NH_3, H_3O^+ d) NH_4OH, H_2O

30. Which of the following is Lewis acid?

a) NH_3 b) H_2O c) ROH d) BeF_2

31. Which of following is a very weak base?

a) $C\ell O_4^-$ b) H_2O c) NO_2^- d) F^-

32. Which is less acidic among the following?

a) Vinegar b) Tomato juice c) Stomach acid d) Orange juice

33. Williamson synthesis of preparing dimethyl ether is a / an

a) S_N1 reaction b) S_N2 reaction

c) electrophilic addition d) electrophilic substitution

34. $HO-CH_2-CH_2-OH$ on heating with periodic acid gives

a) Methanoic acid b) Glyoxal c) Methanal d) CO_2

35. Ethanol $\xrightarrow{PC\ell s}$ X $\xrightarrow[KOH]{\text{alcoholic}}$ Y $\xrightarrow[298K]{H_2SO_4/H_2O}$ Z. What is 'Z'?

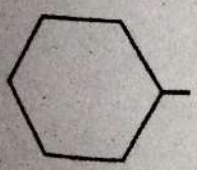
a) Ethane b) Ethoxy ethane c) Ethylbisulphate d) Ethanol

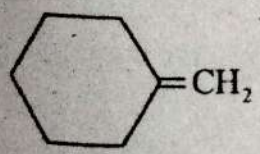
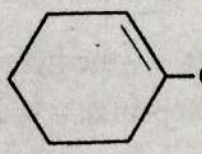
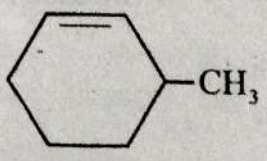
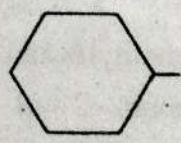
36. Which one of the following will react with Phenol to give Salicylaldehyde after hydrolysis?

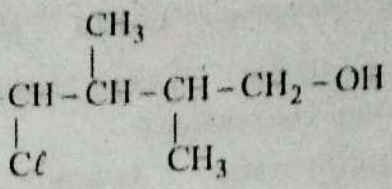
a) Dichloromethane b) Trichloroethane c) Trichloromethane d) CO_2

37. 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

38.  on treatment with con. H_2SO_4, predominately gives

a)  b)  c)  d) 

39. The correct IUPAC name of 

a) 4 - chloro -2, 3 - dimethyl pentan - 1 - ol b) 2, 3 - dimethyl - 4 chloro pentan - 1 - ol
c) 2, 3, 4 - trimethyl - 4 - chlorobutan - 1 - ol d) 4 - chloro - 2, 3, 4 - trimethyl pentan - 1 - ol

40. Which will give methyl alcohol on treatment with hot HI?

a) $(CH_3)_3C-O-CH_3$ b) $(CH_3)_2CH-CH_2-O-CH_3$

c) $CH_3(CH_2)_3-O-CH_3$ d) $CH_3-CH_2-\underset{\displaystyle CH_3}{\underset{|}{CH}}-O-CH_3$

41. $(CH_3)_3-C-CH(OH)CH_3 \xrightarrow[H_2SO_4]{\text{con}} X$ (major product)

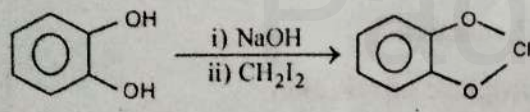
a) $(CH_3)_3CCH=CH_2$ b) $(CH_3)_2C=C(CH_3)-CH_2CH_2CH_3$
c) $CH_2=C(CH_3)-CH_2-CH_2-CH_3$ d) $CH_2=C(CH_3)-CH_2CH_2CH_3$

42. Which one of the following is the strongest acid?

a) 2 - nitrophenol b) 4 - chlorophenol c) 4 - nitrophenol d) 3 - nitrophenol

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

a) Both assertion and reason are true, reason is the correct explanation for the assertion.
b) Both assertion and reason are true, but reason is not the correct explanation for the assertion.
c) Assertion is true but reason is false. d) Both assertion and reason are false.

44.  . This reaction is an example of

a) Wurtz reaction b) cyclic reaction c) Williamson reaction d) Kolbe reaction

45. Ethene $\xrightarrow{HOCl}$ A $\xrightarrow{X}$ ethan $-1,2-$ diol. A, X are respectively

a) Chloroethane, NaOH b) Ethanol, H_2SO_4
c) 2 - chloroethan -1- ol and $NaHCO_3$ d) Ethanol, H_2O

46. Which of the following will give precipitate immediately with con HCl and anhydrous $ZnCl_2$.

a) $CH_2=C(Cl)-CH(OH)CH_3$ b) $CH_3CH_2CH_2CH_2OH$
c) $(C_2H_5)_3C(OH)$ d) $C_6H_3CH_2OH$

47. Glycol on reaction with periodic acid gives

a) 1, 4 - dioxane b) Acrolein c) Acetaldehyde d) Formaldehyde

48. The hybridisation of the Carbon atom having OH group in Phenol is

a) sp b) sp^2 c) sp^3 d) dsp^2

49. Which of the following is used to prepare the medicine 'Salol'?

a) Glycol b) Glycerol c) Diethyl ether d) Phenol

50. Acetone $\xrightarrow[ii)\ H_2O,H^+]{i)\ C_2H_5MgBr,\text{dry ether}}$ product. IUPAC name of the product.

a) 2 methyl butan - 2 - ol b) 2 - methyl propan - 2 - ol
c) pentan - 2 - ol d) pentan - 3 - ol

Name: Section: Reg.No

One Mark Test - 4

Standard XII

CHEMISTRY

Time: 1.00 hr. Marks: 50

Choose and write the correct answer: 50x1=50

1. The equivalent conductance of $\frac{M}{36}$ solution of a weak monobasic acid is $6\,mho\,cm^2equ^{-1}$ and at infinite dilution is $400\ mho\,cm^2equ^{-1}$. The dissociation constant of this acid is

   a) 1.25×10^{-6} b) 6.25×10^{-6} c) 1.25×10^{-4} d) 6.25×10^{-5} ☐

2. How many Faradays of elelctricity are required for the following to occur $MnO_4^- \rightarrow Mn^{2+}$?

   a) 5F b) 3F c) 1F d) 7F ☐

3. Consider the change in oxidation state of Bromine corresponding to different emf values as shown in the diagram below:

   $BrO_4^- \xrightarrow{1.82V} BrO_3^- \xrightarrow{1.5V} HBrO \xrightarrow{1.595V} Br_2 \xrightarrow{1.062V} Br$

   Then the species undergoing disproportionation is

   a) Br_2 b) BrO_4^- c) BrO_3^- d) HBrO ☐

4. The number of electrons delivered at the cathode during electrolysis by a current of 1A in 60 sec is (Charge of an electron = $1.6\times10^{-19}C$)

   a) 6.22×10^{23} b) 6.022×10^{22} c) 3.75×10^{20} d) 7.48×10^{23} ☐

5. A conductivity cell has been calibrated with a 0.01M, 1: 1 electrolytic solution (sp.conductance $\kappa = 1.25\times10^{-3}Scm^{-1}$) in the cell and the measured resistance was 800Ω at $25°C$. The cell constant is

   a) $10^{-1}cm^{-1}$ b) $10^{1}cm^{-1}$ c) $1cm^{-1}$ d) 5.7×10^{-12} ☐

6. The number of electrons that have a total change of 9650 coulomb is

   a) 6.22×10^{23} b) 6.022×10^{24} c) 6.022×10^{22} d) 6.022×10^{-34} ☐

7. Faraday's constant is defined as

   a) change carried by 1 electron b) charge carried by 1 mole of electrons
   c) charge required to deposit 1 mole of substance
   d) charge carried by 6.22×10^{10} electrons ☐

8. Which of the following electrolytic solution has the least specific conductance?

   a) 2 N b) 0.002 N c) 0.02 N d) 0.2 N ☐

9. Assertion : Pure Iron when heated in dry air is converted with a layer of rust.

   Reason : Rust has the composition Fe_3O_4.

   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. ☐

10. The button cell used in watches function as follows

    $Zn_{(s)} + Ag_2O_{(s)} + H_2O_{(\ell)} \rightleftharpoons 2Ag_{(s)} + Zn^{2+}_{(aq)} + 2OH^-_{(aq)}$ the half cell potential are

    $Ag_2O_{(s)} + H_2O_{(\ell)} + 2e^- \rightarrow 2Ag_{(s)} + 2OH^-_{(aq)} E^0 = 0.34V$ and $Zn_{(s)} \rightarrow Zn^{2+}_{(aq)} + 2e^- E^0 = 0.76V$

    the cell potentials

    a) 0.84 V b) 1.34 V c) 1.10 V d) 0.42 V ☐

11. Among the following cells (I) Leclanche cell (II) Nickel - cadmium cell (III) Lead storage battery (IV) Mercury cell - primary cells are

    a) I, IV b) I, III c) III, IV d) II, III ☐

12. The molar conductivity of a 0.5 mol dm^{-3} solution of $AgNO_3$ with electrolytic conductivity of $5.76\times10^{-3} Scm^{-1}$ at 298K is

a) $2.88 Scm^2mol^{-1}$ b) $11.52 Scm^2mol^{-1}$ c) $0.086 Scm^2mol^{-1}$ d) $28.8 Scm^2mol^{-1}$ ☐

13. When 2A of current is passed for 20 minutes through a solution, the amount of current passed through is

a) 2400 C b) 1200 C c) 120 C d) 4800 C ☐

14. The charge of 2 mole of electrons is

a) 96,500 C b) 1,93,000 C c) 48,250 C d) 1.602×10^{-19} C ☐

15. Which of the following will not give a straight line in the graph between λ_m Vs $\sqrt{C}$?

a) NH_4OH b) NaOH c) NaCℓ d) KOH ☐

16. Which of the following factor decreases the conductivity of an electrolyte?

a) Dilution b) Temperature
c) Solvent of high dielectric constant d) Viscosity of the medium ☐

17. The unit for specific conductance is

a) $ohm^{-1}m^{-1}$ b) mho m^{-1}
c) S m^{-1} d) all are correct ☐

18. Match the List I with List II and write the correct code given below.

List I		List II	
A)	Pure nitrogen	1)	Chlorine
B)	Haber process	2)	Sulphuric acid
C)	Contact process	3)	Ammonia
D)	Decon's process	4)	Sodium azide (or) Barium azide

Code :	A	B	C	D		A	B	C	D
a)	1	2	3	4	b)	2	4	1	3
c)	3	4	2	1	d)	4	3	2	1

☐

19. Collodion is a 4% solution of which one of the following compounds in alcohol - ether mixture?

a) Nitroglycerine b) Cellulose acetate
c) Glycoldinitrate d) Nitrocellulose ☐

20. The most effective electrolyte for the coagulation of As_2S_3 Sol is

a) NaCℓ b) $Ba(NO_3)_2$ c) $K_3[Fe(CN)_6]$ d) $Aℓ_2(SO_4)_3$ ☐

21. For Freundlich isotherm a graph of $\log\frac{x}{m}$ is plotted against log P. The slope of the line and its y - axis intercept respectively corresponds to

a) $\frac{1}{n}.k$ b) $\log\frac{1}{n}.k$ c) $\frac{1}{n}.\log k$ d) $\log\frac{1}{n}.\log k$ ☐

22. On which of the following properties does the coagulating power of an ion depend?

a) Both magnitude and sign of the charge of the ion b) Size of the ion alone
c) The magnitude of the charge of the ion alone d) The sign of charge of the ion alone ☐

23. The phenomenon observed when a beam of light is passed through a colloidal solution is

a) Cataphoresis b) Electrophoresis c) Coagulation d) Tyndall effect ☐

24. Fog is a colloidal solution of

a) solid in gas b) gas in gas c) liquid in gas d) gas in liquid ☐

25. An example for homogeneous catalysis

a) manufacture of Ammonia by Haber process
b) manufacture of Sulphuric acid by contact process
c) hydrogenation of oil
d) hydrolysis of Sucrose in the presence of dil.H_2SO_4 ☐

26. Which of the following is correctly matched?

a) Emulsion - Smoke
b) Gel - Butter
c) Foam - Mist
d) Whipped cream - Sol ☐

27. Which of the following is incorrect for physisorption?
a) Reversible
b) Increase with increase in temperature
c) Low heat of adsorption
d) Increases with increase in surface area

28. Adsorption of a gas on solid metal surface is spontaneous and exothermic, then
a) ΔH increases b) ΔS increases c) ΔG increases d) ΔS decreases

29. Which of the following colloid has the Gold number value 0.005 – 0.01?
a) Starch b) Egg albumin c) Gum arabic d) Gelatin

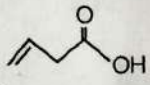
30. Which is not a positively charge colloid?
a) Arsenic sulphide
b) Aluminium hydroxide
c) Basic dyes
d) Haemoglobin

31. Which colloidal particle has spherical shape?
a) W_3O_5 sol b) As_2S_3 colloid c) $Fe(OH)_3$ sol d) Gold sol

32. In the oxidation of HCl by air in presence of $CuC\ell_2$, the intermediate compound formed is
a) $Cu_2OC\ell_2$ b) $Cu_2C\ell_2$ c) $CuC\ell_2$ d) O_2

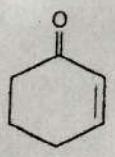
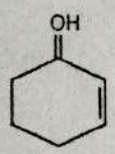
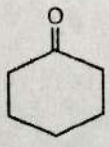
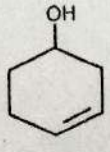
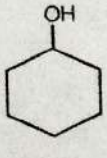
33. In physisorption, when temperature increases $\frac{x}{m}$ value
a) increases
b) decreases
c) first increases then decreases
d) first decreases then increases

34. In which of the following reactions new Carbon - Carbon bond is not formed?
a) Aldol condensation
b) Friedel Craft's reaction
c) Kolbe's reaction
d) Wolf - Kishner reduction

35. The IUPAC name of 
a) but - 3 - enoicacid
b) but - 1 - ene - 4 - oicacid
c) but - 2 - ene - 1 - oicacid
d) but - 3 - ene - 1 - oicacid

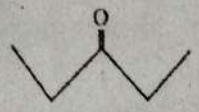
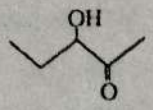
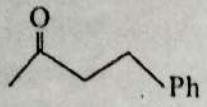
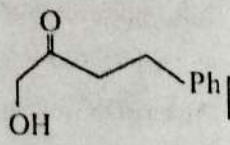
36. The correct order of acidity of the given compounds
a) $FCH_2COOH > CH_3COOH > BrCH_2COOH > C\ell CH_2COOH$
b) $FCH_2COOH > C\ell CH_2COOH > BrCH_2COOH > CH_3COOH$
c) $CH_3COOH > C\ell CH_2COOH > FCH_2COOH > BrCH_2COOH$
d) $C\ell CH_2COOH > CH_3COOH > BrCH_2COOH > ICH_2COOH$

37. $CH_3Br \xrightarrow{KCN} (A) \xrightarrow{H_3O^+} (B) \xrightarrow{PC\ell_5} (C)$. The product (C) is
a) acetylchloride
b) chloro acetic acid
c) α - chlorocyano ethanoic acid
d) none of these

38.  $\xrightarrow[Pd/c\ ethanol]{H_2(gas,1atm)}$ (A). The correct structure of (A) is
a) 
b) 
c) 
d) 

39. Assertion : 2, 2 - dimethyl propanoic acid does not give HVZ reaction.
Reason : 2, 2 - dimethyl propanoic acid does not have hydrogen atom.
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.

40. Which one of the following undergoes reaction with 50% NaOH solution to give the corresponding alcohol and acid?
a) Phenyl methanal b) Ethanal c) Ethanol d) Methanol

41. In which case, chiral carbon is not generated by reaction with HCN?
a)  b)  c)  d) 

42. Which one of the following reduces Tollen's reagent?
a) Formic acid b) Acetic acid c) Benzophenone 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 the presence of slightly acidic solution
d) hydrocyanic acid

44. Ethanoic acid $\xrightarrow{P/Br_2}$ 2 - bromoethanoic acid. This reaction is called as
a) Finkelstein reaction b) Haloform reaction
c) Hell-Volhard - Zelinsky reaction d) None of these

45. The reagent used to distinguish between Acetaldehyde and Benzaldehyde is
a) Tollen's reagent b) Fehling's solution
c) 2, 4 - dinitrophenyl hydrazine d) Semi carbazide

46. $HC \equiv CH \xrightarrow[HgSO_4]{H_2SO_4} X$. The product 'X' will not give
a) Tollen's test b) Victor meyer test c) Iodoform test d) Fehling solution test

47. Most reactive among the following acid derivatives is
a) $RCONH_2$ b) RCOOR
c) $R-\overset{O}{\overset{\|}{C}}-O-\overset{O}{\overset{\|}{C}}-R$ d) $RCOC\ell$

48. The acid that cannot be prepared using Grignard reagent is
a) CH_3COOH b) C_6H_5COOH c) HCOOH d) CH_3CH_2COOH

49. The compound used to prepare benzhydrol eye drop is
a) Benzaldehyde b) Benzophenone c) Benzoic acid d) Benzyl alcohol

50. The dry distillation of calcium formate and calcium acetate gives
a) Propanone b) Ethanal c) Methanal d) Propanal

XII-OT-24 CHE-5

Name: Section: Reg.No

One Mark Test - 5

Standard XII

CHEMISTRY

Time: 1.00 hr. Marks: 50

Choose and write the correct answer: 50x1=50

1. IUPAC name of the amine $CH_3-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{N}}-\underset{\underset{C_2H_5}{|}}{\overset{\overset{|}{}}{C}}-CH_2-CH_3$ is
   a) 3 - bimethylamino - 3 - methyl pentane
   b) 3 (N, N - Triethyl) - 3 - amino pentane
   c) 3 - N, N - trimethyl pentamine
   d) N, N - dimethyl - 3 - methyl - pentan - 3 - amine ☐

2. $C_6H_5NO_2 \xrightarrow{Fe/HCl} A \xrightarrow[273K]{NaNO_2/HCl} B \xrightarrow[283K]{H_2O} C$. Compound 'C' is
   a) C_6H_5OH b) $C_6H_5CH_2OH$ c) C_6H_5CHO d) $C_6H_5NH_2$ ☐

3. When aniline reacts with acetic anhydride the product formed is
   a) o - amino acetophenone
   b) m - amino acetophenone
   c) p - amino acetophenone
   d) acetanilide ☐

4. The product formed by the reaction of an aldehyde with a primary amine is
   a) carboxylic acid b) aromatic acid c) schiff's base d) ketone ☐

5. Which of the following reagent can be used to convert nitrobenzene into aniline?
   a) Sn / HCℓ b) ZnHg / NaOH c) Zn / $NH_4C\ell$ d) All of these ☐

6. Ammonium salt of benzoic acid is heated strongly with P_2O_5 and the product so formed is reduced and then treated with $NaNO_2$ / HCℓ at low temperature. The final compound formed is
   a) Benzene diazonium chloride
   b) Benzyl alcohol
   c) Phenol
   d) Nitrosobenzene ☐

7. Which one of the following is most basic?
   a) 2, 4 - dichloroaniline
   b) 2, 4 - dimethylaniline
   c) 2, 4 - dinitroaniline
   d) 2, 4 - dibromoaniline ☐

8. $C_5H_{13}N$ reacts with HNO_2 to give an optically active compound. The compound is
   a) pentan - 1 - amine
   b) pentan - 2 - amine
   c) N,N - dimethyl propan - 2 - amine
   d) diethyl methyl amine ☐

9. Which one of the following will not undergo Hoffmann bromamide reaction?
   a) $CH_3CONHCH_3$
   b) $CH_3CH_2CONH_2$
   c) CH_3CONH_2
   d) $C_6H_5CONH_2$ ☐

10. The order of basic strength for methyl substituted amines in aqueous solution is
    a) $N(CH_3)_3 > N(CH_3)_2H > N(CH_3)H_2 > NH_3$
    b) $N(CH_3)H_2 > N(CH_3)_2H > N(CH_3)_3 > NH_3$
    c) $NH_3 > N(CH_3)H_2 > N(CH_3)_2H > N(CH_3)_3$
    d) $N(CH_3)_2H > N(CH_3)H_2 > N(CH_3)_3 > NH_3$

11. $CH_3CH_2Br \xrightarrow[\Delta]{aq.NaOH} A \xrightarrow[\Delta]{KMnO_4/H^+} B \xrightarrow[\Delta]{NH_3} C \xrightarrow{Br_2/NaOH} D$. 'D' is
    a) bromoethane
    b) α - bromo sodium acetate
    c) methanamine
    d) acetamide

12. Secondary nitro alkanes react with nitrous acid to form
    a) red solution b) blue solution c) green solution d) yellow solution

13. 4% solution of ethylnitrite in alcohol is used as
    a) insecticide b) diuretic c) solvent for dyes d) fuel for cars

14. Benzene diazonium chloride reacts with ..... to give benzene.
    a) ethanol b) heating with water c) acetic acid d) phenol

15. Which of the following amines has the least boiling point?
    a) CH_3NH_2 b) $(CH_3)_2NH$ c) $(CH_3)_3N$ d) $(CH_3)CH_2NH_2$

16. The end product obtained during the reduction of nitrobenzene by Zn / NaOH is
    a) Hydrazobenzene
    b) Azobenzene
    c) Nitrazobenzene
    d) Phenyl hydroxylamine

17. Which of the following has the least acidic character?
    a) CH_3NO_2 b) $\begin{matrix}CH_3\\CH_3\end{matrix}\!\!>\!\!CH-NO_2$ c) $CH_3CH_2NO_2$ d) $CH_3-\overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}}-NO_2$

18. Which of the following is not correct with nitro form in a tautomerism?
    a) Less acidic
    b) Dissolves in NaOH slowly
    c) With $FeCl_3$, gives reddish brown colour
    d) Electrical conductivity is low

19. Insulin, a hormone chemically is
    a) fat b) steroid c) protein d) carbohydrates

20. Which of the following amino acids is achiral?
    a) Alanine b) Leucine c) Proline d) Glycine

21. The number of sp^2 and sp^3 hybridised carbon in fructose are respectively
    a) 1 and 4 b) 4 and 2 c) 5 and 1 d) 1 and 5

22. In a protein, various amino acids linked together by
    a) peptide bond
    b) dative bond
    c) α - glycosidic bond
    d) β - glycosidic bond

23. Which of the following will relate plane polarised light towards left?
    a) D (+) Glucose b) L (+) Glucose c) D (–) Fructose d) D (+) Galactose

24. Which of the below given is a non - reducing sugar?
    a) Glucose b) Sucrose c) Maltose d) Lactose

25. Which one of the following is not produced by the body?
a) DNA b) Enzymes c) Hormones d) Vitamins

26. Vitamin B_2 is also known as
a) riboflavin b) thiamine c) nicotinamide d) pyridoxine

27. α - D (+) Glucose and β - D (+) glucose are
a) Epimers b) Anomers c) Enantiomers d) Conformational isomers

28. Complete hydrolysis of cellulose gives
a) L - Glucose b) D - Fructose c) D - Ribose d) D - Glucose

29. Which of the following is the example for functional group present aldehyde and number of carbon atoms in the chain is five?
a) Erythrose b) Ribose c) Glucose d) Glyceraldehyde

30. Partial reduction of fructose with sodium amalgam and water produces
a) sorbitol b) mannitol c) glycolic acid d) a, b both

31. The carbon atoms at which the secondary – OH groups are attached in fructose
a) C_1, C_6 b) C_2, C_3, C_4 c) C_1, C_2 d) C_3, C_4, C_5

32. Example for fibrous proteins
a) keratin b) insulin c) Collegan d) a, c both

33. Which of the following is not correct about Lipids?
a) They yield more energy than proteins b) They acts as emulsifier in fat metabolism
c) They help in the absorption and transport of water soluable vitamins
d) They are essential for activation of enzymes such as lipases

34. Which of the following is used as medicine for convulsions?
a) Ascorbic acid b) Pyridoxine c) Biotine d) Cobalamin

35. In which of the following, thiamine is present
a) RNA b) DNA
c) In DNA and RNA d) It is not found in DNA and RNA

36. Regarding cross - linked or net work polymers which of the following statement is incorrect?
a) Examples are bakelite and melamine
b) They are formed from bi and tri functional monomers
c) They contain covalent bonds between various linear polymer chains
d) They contain covalent bonds in their polymer chain

37. Terylene is an example of
a) Polyamide b) Polythene c) Polyester d) Polysaccharide

38. Which one of the following is a bio - degradable polymer?
a) HDPE b) PVC c) Nylon - 6 d) PHBV

39. The polymer used in making blankets (artificial wool) is
a) polystyrene b) PAN c) polyester d) polythene

40. Which of the following is analgesic?
a) Streptomycin b) Chloromycitin c) Aspirin d) Penicillin

41. Assertion : 2 methyl– 1, 3 - butadiene is the monomer of natural rubber.
Reason : Natural rubber is formed through anionic addition polymerisation.
a) Both assertion, reason are true and reason is the correct explanation for the assertion.
b) Both assertion, reason are true but reason is not the correct explanation for the assertion.
c) Assertion is true but reason is false.
d) Both assertion and reason are false. ☐

42. Which of the following is a copolymer?
a) Orlon b) PVC c) Teflon d) PHBV ☐

43. Drugs that bind to the receptor site and inhibit its natural function are called
a) antogonists b) agonists c) enzymes d) molecular tangets ☐

44. Aspirin is a / an
a) acetyl salicylic acid
b) benzoyl salicylic acid
c) chloro benzoic acid
d) anthranilic acid ☐

45. Non stick cook wares geneally have a coating of a polymer whose monomer is
a) ethane
b) prop - 2 - enenitrile
c) chloroethene
d) 1, 1, 2, 2 - tetra fluro ethane ☐

46. Which of the following is not an antibiotic drug?
a) Erthromycin b) Cefixime c) Amlodipine d) Tetracycline ☐

47. Which of the following is an example for non steroidal anti - inflammatory drug?
a) Aspirin b) Paracetamol c) Acetaminophen d) Ibuprofen ☐

48. Example for biodegradable polymer
a) Polyglycolic acid
b) Polythene
c) Polyester
d) Phenolformaldehyde ☐

49. Which of the following is wrongly matched?
a) Artificial sweetening agent - Saccharin
b) Sugar substituent - Xylitol
c) Anti oxidant - Aspartame
d) Food preservative - Sodium meta bisulphite ☐

50. Oxytetracycline is an example for
a) antiseptics b) antimicrobials c) tranquilizers d) analgesics ☐

Name: Section: Reg.No

One Mark Test - 6

Standard XII

CHEMISTRY

Time: 1.00 hr. Marks: 50

Choose and write the correct answer: 50x1=50

1. In the extraction of aluminium from alumina by electrolysis, cryolite is added to
   a) lower the melting point of alumina b) remove impurities from alumina
   c) decrease the electrical conductivity d) increase the rate of reduction ☐
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. In Diborane, the number of electrons that accounts for banana bonds is
   a) six b) two c) four d) three ☐
4. The basic structural unit of silicates is
   a) $(SiO_3)^{2-}$ b) $(SiO_4)^{2-}$ c) $(SiO)^-$ d) $(SiO_4)^{4-}$ ☐
5. Assertion : Bond dissociation energy of Fluorine is greater than Chlorine gas.
   Reason : Chlorine has more electronic repulsion than Fluorine.
   a) Both assertion, reason are true and reason is the correct explanation of assertion.
   b) Both assertion, 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. ☐
6. Among the following, which is the strongest oxidising agent?
   a) $C\ell_2$ b) F_2 c) Br_2 d) I_2 ☐
7. The molarity of given Orthophosphoric acid solution is 2M. Its normality is
   a) 6N b) 4N c) 2N d) none of these ☐
8. The most common oxidation state of Actinoids is
   a) +2 b) +3 c) +4 d) +6 ☐
9. The number of moles of acidified $KMnO_4$ required to oxidize 1 mole of Ferrous oxalate (FeC_2O_4) is
   a) 5 b) 3 c) 0.6 d) 1.5 ☐
10. Which one of the following will show a magnetic moment of 1.73BM?
    a) $TiC\ell_4$ b) $[CoC\ell_6]^{4-}$ c) $[Cu(NH_3)_4]^{2+}$ d) $[Ni(CN)_4]^{2-}$ ☐
11. Which of the following pair represents linkage isomers?
    a) $[Cu(NH_3)_4][PtC\ell_4]$ and $[Pt(NH_3)_4][CuC\ell_4]$
    b) $[Co(NH_3)_5(NO_3)]SO_4$ and $[Co(NH_3)_5(ONO)]$
    c) $[Co(NH_3)_4(NCS)_2]C\ell$ and $[Co(NH_3)_4(SCN)_2]C\ell$
    d) Both (b) and (c) ☐
12. Which of the following will give a pair of enantiomorphs?
    a) $[Cr(NH_3)_6][Co(CN)_6]$ b) $[Co(en)_2C\ell_2]C\ell$
    c) $[Pt(NH_3)_4][PtC\ell_4]$ d) $[Co(NH_3)_4C\ell_2]NO_2$ ☐
13. In $[Ni(CN)_4]$, the coordination number and hybridisation
    a) 4, dsp^2 b) 4, sp^3d^2 c) 6, d^2sp d) 4, sp^3 ☐
14. In $[Cr(en)_3]^{3+}$, the oxidation number of the central metal atom is
    a) 0 b) 6 c) +3 d) −3 ☐

15. In which of the following, the hybridisation and shape are incorrect?
a) XeO_3 – sp^3 - Pyramidal
b) XeF_6^- – sp^3d^3 - Distorted octahedron
c) $XeOF_2$ – sp^3d^1 - Square pyramidal
d) XeF_4 – sp^3d^2 - Square plannar

16. Which of the following has rotten fish smell?
a) PH_3 b) P_2O_3 c) P_2O_5 d) H_2S

17. Which of the following group has no metalloids?
a) Group 16 b) Group 17 c) Group 15 d) Group 14

18. In Calcium fluoride, having the fluorite structure the coordination number of Ca^{2+} ion and F^- ion are
a) 4 and 2 b) 6 and 6 c) 8 and 4 d) 4 and 8

19. In a solid atom M occupies ccp lattice and $\left(\frac{1}{3}\right)$ of tetrahedral voids are occupied by atom N. Find the formula of solid formed by M and N.
a) MN b) M_3N c) MN_3 d) M_3N_2

20. Assertion : Due to Frenkel defect, density of the crystalline solid decreases.
Reason : In Frenkel defect cation and anion leaves the crystal.
a) Both assertion, reason are true and reason is the correct explanation of assertion.
b) Both assertion, 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.

21. In a first order reaction $x \rightarrow y$; if k is the rate constant and the initial concentration of the reactant x is 0.1M, then the half life is
a) $\frac{\ell og_2}{k}$ b) $\frac{0.693}{(0.1)k}$ c) $\frac{\ell n_2}{k}$ d) none of these

22. In a reversible reaction, the enthalpy change and the activation energy in the forward direction are respectively - x kJmol^{-1} and y kJmol^{-1}. Therefore, the energy of activation in the backward direction is
a) $(y-x)$kJ mol^{-1}
b) $(x+y)$J mol^{-1}
c) $(x-y)$kJ mol^{-1}
d) $(x+y)\times10^3$J mol^{-1}

23. For the reaction $N_2O_{5(g)} \rightarrow 2NO_{2(g)} + \frac{1}{2}O_{2(g)}$, the value of rate of disappearance of N_2O_5 is given as 6.5×10^{-2} mol L^{-1}s^{-1}. The rate of formation of NO_2 and O_2 is given respectively as
a) (3.25×10^{-2} mol L^{-1}s^{-1}) and (1.3×10^{-2} mol L^{-1}s^{-1})
b) (1.3×10^{-2} mol L^{-1}s^{-1}) and (3.25×10^{-2} mol L^{-1}s^{-1})
c) (1.3×10^{-1} mol L^{-1}s^{-1}) and (3.25×10^{-2} mol L^{-1}s^{-1})
d) none of these

24. The half life period of a radioactive element is 140 days. After 560 days, 1g of the element will be reduced to
a) $\left(\frac{1}{2}\right)$g b) $\left(\frac{1}{4}\right)$g c) $\left(\frac{1}{8}\right)$g d) $\left(\frac{1}{16}\right)$g

25. Which will make basic buffer?
a) 50 mL, 0.1 M NaOH + 25 mL, 0.1 M CH_3COOH
b) 100 mL, 0.1 M CH_3COOH + 100mL, 0.1M NH_4OH
c) 100 mL, 0.1M HCℓ + 200mL, 0.1M NH_4OH
d) 100 mL, 0.1M HCℓ + 100mL, 0.1M NaOH

26. Among $OH^-, NH_2^-, H-C\equiv C^-$ and $CH_3-CH_2^-$, the decreasing order of their basic strength
a) $OH^- > NH_2^- > H-C\equiv C^- > CH_3-CH_2^-$ b) $NH_2^- > OH^- > CH_3-CH_2^- > H-C\equiv C^-$
c) $CH_3-CH_2^- > NH_2^- > H-C\equiv C^- > OH^-$ d) $OH^- > H-C\equiv C^- > CH_3-CH_2^- > NH_2^-$ ☐

27. Which of the following can act as Lowry - Bronsted acid as well as base?
a) HCl b) SO_4^{2-} c) HPO_4^{2-} d) Br^- ☐

28. During electrolysis of molten $NaCl$, the time required to produce 0.1 mole of chlorine gas using a current of 3A is
a) 55 minutes b) 107.2 minutes c) 220 minutes d) 330 minutes ☐

29. Zinc can be coated on iron to produce galvanization iron but the reverse is not possible, because
a) Zinc is lighter than Iron b) Zinc has lower melting point than Iron
c) Zinc has lower negative electrode potential than Iron
d) Zinc has higher negative electrode potential than Iron ☐

30. The equivalent conductance of $\frac{M}{36}$ solution of a weak mono basic acid is $6\,mho\,cm^2equ^{-1}$ and at infinite dilution is $400\,mho\,cm^2equ^{-1}$. The dissociation constant of the acid is
a) 1.25×10^{-6} b) 6.25×10^{-6} c) 1.25×10^{-4} d) 6.25×10^{-5} ☐

31. Hair cream is a
a) gel b) emulsion c) solid sol d) sol ☐

32. Which of the following characteristics are associated with adsorption?
a) $\Delta G, \Delta H$ are negative but ΔS is positive b) $\Delta G, \Delta S$ are negative but ΔH is positive
c) ΔG is negative but $\Delta H, \Delta S$ are positive d) $\Delta G, \Delta H, \Delta S$ all are negative ☐

33. Match the following:

A) V_2O_5	-	i)	High density polyethylene
B) Ziegler - Natta	-	ii)	PAN
C) Peroxide	-	iii)	NH_3
D) Finely divided Fe	-	iv)	H_2SO_4

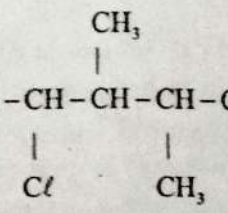
	A	B	C	D		A	B	C	D
a)	iv	i	ii	iii	b)	i	ii	iv	iii
c)	ii	iii	iv	i	d)	iii	iv	ii	i

☐

34. Which is used to calculate Avogadro number?
a) Tyndall effect b) Brownian movement
c) Electrophoresis d) Electroosmosis ☐

35. The mass of the substance liberated during electrolysis is ..... to the quantity of charge passed through the cell.
a) directly proportional b) inversly proportional
c) no relation d) during electrolysis no substance is liberated ☐

36. Which of the following compounds on reaction with Methyl magnesium bromide will give tertiary alcohol?
a) Benzaldehyde b) Propionic acid c) Methyl propanoate d) Acetaldehyde ☐

37. The IUPAC name of

a) 4 - chloro - 2, 3 - dimethyl pentan - 1 - ol b) 2, 3 - dimethyl - 4 - chloropentan - 1 - ol ☐
c) 2, 3, 4 - trimethyl - 4 - chlorobutan - 1 - ol d) 4 - chloro - 2, 3, 4 - trimethyl pentan - 1 - ol

38. Isopropylbenzene 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_5OH ☐

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

40. $CH_2 = CH_2 \xrightarrow[(ii)\,Zn/H_2O]{(i)\,O_3} X \xrightarrow{NH_3} Y$. Compound 'Y' is
a) formaldehyde b) diacetone ammonia
c) hexamethylene tetramine d) oxime

41. Benzoic acid $\xrightarrow[(ii)\,\Delta]{(i)\,NH_3} A \xrightarrow{NaOBr} B \xrightarrow{NaNO_2/HCl} C$. What is 'C'?
a) Anilinium chloride b) o - nitro aniline
c) Benzene diazonium chloride d) m - nitro benzoic acid

42. Assertion : p - N, N dimethyl aminobenzaldehyde undergoes benzoin condensation.
Reason : The aldehydic (– CHO) group is meta directing.
a) Both assertion, reason are true and reason is the correct explanation of assertion.
b) Both assertion, 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.

43. Which of the following will not react with nitrous acid?
a) $CH_3CH_2CH_2NO_2$ b) $(CH_3)_2CH-CH_2NO_2$
c) $(CH_3)_3CNO_2$ d) $CH_3-\underset{\underset{O}{\|}}{C}-\underset{\underset{CH_3}{|}}{CH}-NO_2$

44. Aniline + Benzoylchloride $\xrightarrow{NaOH} C_6H_5NHCO_8H_5$. this reaction is known as
a) Friedel - Craft's reaction b) HVZ reaction
c) Schotten - Baumann reaction d) none of these

45. Assertion : Acetamide on reaction with KOH and Bromine gives Acetic acid.
Reason : Bromine catalyses hydrolysis of Acetamide.
a) Both assertion, reason are true and reason is the correct explanation of assertion.
b) Both assertion, 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.

46. Glucose $\xrightarrow{HCN}$ Product $\xrightarrow{hydrolysis}$ Product $\xrightarrow{HI,\,heat}$ A. The compound 'A' is
a) Heptanoic acid b) 2 - iodohexane c) Heptane d) Heptanol

47. In aqueous solution, amino acids mostly exist in
a) $NH_2-CH(R)-COOH$ b) $NH_2-CH(R)-COO^-$
c) $\overset{+}{N}H_3-CH(R)-COOH$ d) $\overset{+}{N}H_3-CH(R)-COO^-$

48. Which of the following is not correct?
a) Ovalbumin is a simple food reverse in egg white.
b) Blood proteins thrombin and fibrinogen are involved in blood clotting.
c) Denaturation makes protein more active.
d) Insulin maintains the sugar level of in the human body.

49. Which of the following are epimers?
a) D (+) Glucose and D (+) Galactose b) D (+) Glucose and D (+) Mannose
c) Neither (a) nor (b) d) Both (a) and (b)

50. Non stick cookwares generally have a coating of polymer, whose monomer is
a) ethane b) prop - 2 - enenitrile
c) chloroethene d) 1, 1, 2, 2 - tetrafluoroethane

XII-OT-24

Name: Section: Reg.No

One Mark Test - 7

Standard XII

CHEMISTRY

Marks: 50

Time: 1.00 hr. 50x1=50

Choose and write the correct answer:

1. In the electrolytic refining of copper, which of the following is used as anode?
   a) Pure copper b) Impure copper c) Carbon rod d) Platinum electrode ☐
2. Electrochemical process is used to extract
   a) Iron b) Lead c) Sodium d) Silver ☐
3. Match the following.
   A) Cyanide process - i) Ultra pure Ge
   B) Froth flotation process - ii) Dressing of ZnS
   C) Electrolytic reduction - iii) Extraction of Al
   D) Zone refining - iv) Extraction of Au
   - v) Purification of Ni

	A	B	C	D		A	B	C	D
a)	i	ii	iii	iv	b)	iii	iv	v	i
c)	iv	ii	iii	i	d)	ii	iii	i	v

☐
4. Oxidation state of Carbon in its hydrides
   a) +4 b) −4 c) +3 d) +2 ☐
5. Which of the following is not sp^2 hybridised?
   a) Graphite b) Graphene c) Fullerene d) Dry ice ☐
6. The compound that is used in nuclear reactors as protective shields and control rods is
   a) metal borides b) metal oxides c) metal carbonates d) metal carbides ☐
7. On hydrolysis, $PC\ell_3$ gives
   a) H_3PO_3 b) PH_3 c) H_3PO_4 d) $POC\ell_3$ ☐
8. XeF_6 on complete hydrolysis produces
   a) $XeOF_4$ b) XeO_2F_2 c) XeO_3 d) XeO_2 ☐
9. The correct order of bond dissociation enthalpy of halogen molecules is
   a) $Br_2 > I_2 > F_2 > C\ell_2$ b) $F_2 > C\ell_2 > Br_2 > I_2$
   c) $I_2 > Br_2 > C\ell_2 > F_2$ d) $C\ell_2 > Br_2 > F_2 > I_2$ ☐
10. The catalytic behaviour of transition metals and their compounds is ascribed mainly due to
    a) their magnetic behaviour b) their unfilled d orbitals
    c) their ability to adopt variable oxidation states d) their chemical reactivity ☐
11. In acid medium, $KMnO_4$ oxidises oxalic acid into
    a) oxalate b) carbon dioxide c) acetate d) acetic acid ☐
12. Which one of the following is not correct?
    a) $La(OH)_3$ is less basic than $Lu(OH)_3$
    b) In lanthanide 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 ☐
13. IUPAC name of $K_3[A\ell(C_2O_4)_3]$ is
    a) Potassium trioxalato aluminium (III) b) Potassium trioxalato aluminate (II)
    c) Potassium trisoxalato aluminate (III) d) Potassium trioxalato aluminate (III) ☐
14. Which kind of isomerism is possible for a complex $[Co(NH_3)_4Br_2]C\ell$?
    a) Geometrical and ionization b) Geometrical and optical
    c) Optical and ionization d) Geometrical only ☐

13. Which one of the following complexes is not expected to exhibit isomerism?
a) $[Ni(NH_3)_4(H_2O)]^{2+}$ b) $[Pt(NH_3)_2Cl_2]$
c) $[Co(NH_3)_5SO_4]Cl$ d) $[FeCl_6]^{3-}$

16. Which of the following has least stability?
a) $[Hg(CN)_4]^{2-}$ b) $[Co(NH_3)_6]^{3+}$ c) $[Ag(CN)_2]^-$ d) $[Cu(NH_3)_4]^{2+}$

17. Which of the following has +6 oxidation state?
a) Ni b) Mn c) V d) Co

18. Graphite and diamond are
a) covalent and molecular crystals b) ionic and covalent crystals
c) both covalent cyrstals d) both molecular crystals

19. The fraction of total volume occupied by the atoms in a simple cubic is
a) $\frac{\pi}{4\sqrt{2}}$ b) $\frac{\pi}{6}$ c) $\frac{\pi}{4}$ d) $\frac{\pi}{3\sqrt{2}}$

20. CsCl has bcc arrangement, its unit cell edge length is 400 pm, its interatomic distance is
a) 400 pm b) 800 pm c) $\sqrt{3}\times100$ pm d) $\frac{\sqrt{3}}{2}\times400$ pm

21. The decomposition of Phosphine (PH_3) on tungsten at low pressure is a first order reaction. It is because the
a) rate is proportional to the surface coverage
b) rate is inversely proportional to the surface coverage
c) rate is independent of the surface coverage d) rate of decomposition is slow

22. For a first order reaction, the rate constant is 6.909 min^{-1} the time taken for 75% conversion in minutes is
a) $\left(\frac{3}{2}\right)\log_2$ b) $\left(\frac{2}{3}\right)\log_2$ c) $\left(\frac{3}{2}\right)\log\frac{3}{4}$ d) $\left(\frac{2}{3}\right)\log\frac{4}{3}$

23. Assertion : Rate of reaction doubles when the concentration of the reactant doubles, if it is a first order reaction.
Reason : Rate constant also doubles.
a) Both assertion, reason are true and reason is the correct explanation of assertion.
b) Both assertion, 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.

24. The solubility of $2.42\times10^{-3}gL^{-1}$ at 298K. The value of its solubility product (K_{sp}) will be
(molar mass of $BaSO_4 = 233 g\,mol^{-1}$)
a) $1.08\times10^{-14}mol^2L^{-2}$ b) $1.08\times10^{-12}mol^3L^{-2}$
c) $1.08\times10^{-10}mol^2L^{-2}$ d) $1.08\times10^{-8}mol^2L^{-2}$

25. The dissociation constant of a weak acid is 1×10^{-3}. In order to prepare a buffer solution with a pH = 4, the $\frac{[Acid]}{[Salt]}$ ratio should be
a) 4 : 3 b) 3 : 4 c) 10 : 1 d) 1 : 10

26. The conjugate base of $H_2PO_4^-$ is
a) PO_4^{3-} b) P_2O_5 c) H_3PO_4 d) HPO_4^{2-}

27. The molar conductivity of a 0.5 mol dm^{-3} solution of $AgNO_3$ with electrolytic conductivity of 5.76×10^{-4} S cm^{-1} at 298K is
a) 2.88 Scm^2mol^{-1} b) 11.52 S cm^2mol^{-1} c) 0.086 Scm^2mol^{-1} d) 28.8 S cm^2mol^{-1}

28. A current strength of 3.86 A was passed through molten Calcium oxide for 41 minutes and 40 sec. The mass of Calcium in grams deposited at the cathode is (at mass of Ca = 40 g/mol; 1F=96500 C)
a) 4 b) 2 c) 8 d) 6

29. In $H_2 - O_2$ fuel cell, the reaction occurs at cathode is

a) $O_2(g) + 2H_2O(e) + 4e^- \rightarrow 4OH^-(aq)$ b) $H^+(aq) + OH^-(aq) \rightarrow H_2O(e)$

c) $2H_2(g) + O_2(g) \rightarrow 2H_2O(g)$ d) $H^+ + e^- \rightarrow \frac{1}{2}H_2$ ☐

30. Which one of the following is correctly matched?

a) Emulsion - Smoke
b) Gel - Butter
c) Foam - Mist
d) Whipped cream - Sol ☐

31. The coagulating power of an ion depends on

a) both magnitude and sign of the charge on the ion
b) size of ion alone
c) the magnitude of the charge on the ion alone
d) the sign of charge on the ion alone ☐

32. Assertion : Coagulation power of $A\ell^{3+}$ is more than Na^+.
Reason : Greater the valency of the flocculating ion added, greater is its power to cause precipitation.

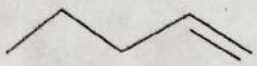
a) Both assertion, reason are true and reason is the correct explanation of assertion.
b) Both assertion, reason are true but reason is not the correct explanation of assertion.
c) Assertion is true but reason is false. d) Both assertion and reason are false. ☐

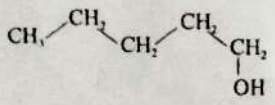
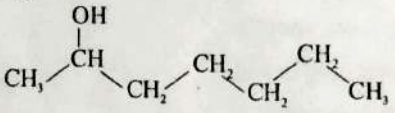
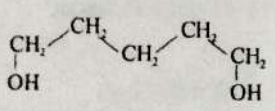
33. Which one of the following is wrongly matched?

a) Double decomposition - Arsenic sulphide Sol
b) Hydrolysis - Ferric hydroxide Sol
c) Reduction - Selenium Sol
d) Oxidation - Iodine Sol ☐

34. 1×10^{-2} M is the concentration of a solution, its dissociation constant is 4×10^{-4}, then its degree of dissociation is

a) 0.2 b) 0.002 c) 4 d) 2 ☐

35.  $\xrightarrow[(ii)H_2O_2/OH^-]{(i)BH_3/THF}$ X. The 'X' is

a) 
b) 
c) 
d) none of these ☐

36. Carbolic acid is

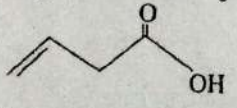
a) phenol b) picric acid c) benzoic acid d) phenylacetic acid ☐

37. Williamson synthesis of preparing dimethyl ether is a / an /

a) S_N1 reaction b) S_N2 reaction
c) electrophilic addition d) electrophilic substitution ☐

38. Which of the following represents the correct order of acidity?

a) $FCH_2COOH > CH_3COOH > BrCH_2COOH > C\ell CH_2COOH$
b) $FCH_2COOH > C\ell C_3COOH > BrCH_2COOH > CH_3COOH$
c) $CH_3COOH > C\ell CH_2COOH > FCH_2COOH > BrCH_2COOH$
d) $C\ell CH_2COOH > CH_3COOH > BrCH_2COOH > FCH_2COOH$ ☐

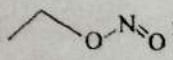
39. The IUPAC name of 

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

40. Which of the following is an example for disproportionation reaction?
a) Aldol condensation b) Cannizaro reaction
c) Benzoin condensation d) None of these

41. The method by which aniline cannot be prepared is
a) degradation of benzamide with Br_2 / NaOH
b) potassium salt of Phthalimide treated with Chlorobenzene followed by hydrolysis with aq.NaOH
c) reduction of Nitrobenzene with $LiA\ell H_4$ d) reduction of Nitrobenzene by Sn / $HC\ell$

42. Which of the following reaction is not correct?
a) $CH_3CH_2NH_2 \xrightarrow{HNO_2} CH_3CH_2OH + N_2$
b) $(CH_3)_2N$–C$_6$H$_4$– $\xrightarrow{NaNO_2/HCl}$ $(CH_3)_2N$–C$_6$H$_4$–N = NCl
c) $CH_3CONH_2 \xrightarrow{Br_2/NaOH} CH_3NH_2$ d) None of these

43. When  is reduced by Sn / $HC\ell$, the pair of compounds formed are
a) Ethanol, hydroxylamine hydrochloride b) Ethanol, ammonium hydroxide
c) Ethanol, NH_2OH d) $C_3H_5NH_2, H_2O$

44. Which of the following rotates plane polarized light towards left?
a) D (+) Glucose b) L (+) Glucose c) D (–) Fructose d) D (+) Galactose

45. The Pyrimidine bases present in DNA are
a) Cytosine and Adenine b) Cytosine and Guanine
c) Cytosine and Thiamine d) Cytosine and Uracil

46. The secondary structure of protein refers to
a) fixed configuration of the polypeptide backbone
b) hydrophobic interaction c) sequence of α - amino acids
d) α - helical backbone

47. Aspirin is a / an
a) acetyl salicylic acid b) benzoyl salicylic acid
c) chlorobenzoic acid d) anthranilic acid

48. Nylon is an example of
a) polyamide b) polythene c) polyester d) polysaccharide

49. The polymer used in making blankets (artificial wool) is
a) polystynene b) PAN c) polyester d) polythene

50. Which of the following is not correct?

Polymer	-	*Prepared form*
a) Neoprene	-	Chloroprene
b) Buna - N	-	Vinyl cyanide, buta - 1, 3 - diene
c) Buna - S	-	Styrene, buta - 1, 3 - diene
d) Nylon - 6, 6	-	Adipic acid, hexapropylene diamine

Name: Section: Reg.No

One Mark Test - 8

Standard XII

CHEMISTRY

Time: 1.00 hr. Marks: 50

Choose and write the correct answer: 50x1=50

1. Roasting of sulphide ore gives the gas (A). (A) is a colourless gas. Its aqueous solution is acidic. The gas (A) is
   a) CO_2 b) SO_3 c) SO_2 d) H_2S ☐
2. Wolframite ore is seperated from tinstone by the process of
   a) smelting b) calcination
   c) roasting d) electromagnetic separation ☐
3. Zinc is obtained from ZnO by
   a) carbon reduction b) reduction using silver
   c) electrochemical process d) acid leaching ☐
4. Which among the following is not a Borane?
   a) B_2H_6 b) B_3H_6 c) B_4H_{10} d) None of these ☐
5. Match the following.

Column - I		*Column - II*
A) Borazole	i)	$B(OH)_3$
B) Boric acid	ii)	$B_3N_3H_6$
C) Quartz	iii)	$Na_2[B_4O_5(OH)_4]8H_2O$
D) Borax	iv)	SiO_2

	A	B	C	D		A	B	C	D
a)	ii	i	iv	iii	b)	i	ii	iii	iv
c)	iv	ii	i	iii	d)	None of these			

☐

6. The stability of +1 oxidation state increases in the sequence.
   a) $A\ell < Ga < In < T\ell$ b) $T\ell < In < Ga < A\ell$
   c) $In < T\ell < Ga < A\ell$ d) $Ga < In < A\ell < T\ell$ ☐
7. In which of the following NH_3 is not used?
   a) Nessler's reagent b) Reagent for the analysis of IV group
   c) Reagent for the analysis of III group d) Tollen's reagent ☐
8. Which one of the following compounds is not formed?
   a) $XeOF_4$ b) XeO_3 c) XeF_2 d) NeF_2 ☐
9. When copper is heated with con. 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 ☐
10. Sc(Z = 21) is a transition element but Zn (Z=30) is not because
    a) both Sc^{3+} and Zn^{2+} ions are colourless and form white compounds
    b) in case of Sc, 3d orbital are partially filled but in Zn these are completely filled
    c) last electron as assumed to be added to 4s level in the case of zinc
    d) both Sc and Zn do not exhibit variable oxidation states ☐
11. Permanganate ion changes to ..... in acidic medium.
    a) MnO_4^{2-} b) Mn^{2+} c) Mn^{3+} d) M_nO_2 ☐
12. The common oxidation state of lanthanides is
    a) +4 b) +2 c) +5 d) +3 ☐

13. An excess of Silver nitrate is added to 100ml of 0.01M solution of pentaaquachloridochromium (III) chloride. The number of moles of $AgCl$ precipitated would be
a) 0.02 b) 0.002 c) 0.01 d) 0.2 ☐

14. Which type of isomerism is exhibited by $[Pt(NH_3)_2C\ell_2]$?
a) Coordination isomerism b) Linkage isomerism
c) Optical isomerism d) Geometrical isomerism ☐

15. Formula of tris (ethane-1, 2 diamine) iron (II) phosphate
a) $[Fe(CH_3-CH(NH_2)_2)_3](PO_4)_3$ b) $[Fe(NH_2-CH_2-CH_2-NH_2)_3](PO_4)$
c) $[Fe(NH_2-CH_2-CH_2-NH_2)_3](PO_4)_2$ d) $[Fe(NH_2-CH_2-CH_2-NH_2)_3]_3(PO_4)_2$ ☐

16. The hybridisation present in $[CoF_6]^{3-}$ is
a) sp^2 b) dsp^2 c) sp^3d^2 d) d^2sp^3 ☐

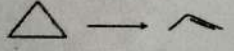
17. In the compound O_2F_2, the oxidation state on Fluorine is
a) −1 b) −2 c) +1 d) +2 ☐

18. Solid CO_2 is an example of
a) covalent solid b) metallic solid c) molecular solid d) ionic solid ☐

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

20. The vaccant space in bcc lattice unit cell is
a) 48% b) 23% c) 32% d) 26% ☐

21. Correct statements in the following.
i) increase in concentration of the reactant increases the rate of zero order reaction.
ii) rate constant k is equal to collision frequency A, if $E_a = 0$.
iii) rate constant k is equal to collision frequency A, if $E_a = \infty$.
iv) a plot of ln (k) VsT is a straight line.
v) a plot of ln (k) Vs $\frac{1}{T}$ is a straight line with positive slope.
a) (ii) only b) (ii) and (iv) c) (ii) and (v) d) (i), (ii) and (v) ☐

22.  This reaction follows first order kinetics. The rate constant at a particular temperature is $2.303\times10^{-2}hr^{-1}$. The initial concentration of cyclopropane is 0.25 M. What will be the concentration of cyclopropane after 1806 minutes? ($\log 2 = 0.3010$)
a) 0.125 M b) 0.215 M c) 0.25×2.303 M d) 0.05 M ☐

23. After 2 hrs, a radioactive substance becomes $\frac{1}{16}^{th}$ of its original amount. Then the half life (in min) is
a) 60 minutes b) 120 minutes c) 30 minutes d) 15 minutes ☐

24. Which of these is not likely to act as Lewis base?
a) BF_3 b) PF_3 c) CO d) F^- ☐

25. The percentage of Pyridine (C_5H_5N) that forms Pyridinium ion $(C_5H_5NH)^+$ in a 0.10M aqueous pyridine solution is (K_b for $C_5H_5N = 1.7\times10^{-9}$)
a) 0.006% b) 0.013% c) 0.77% d) 1.6% ☐

26. The hydrogen ion concentration of a buffer solution consisting of a weak acid and its salt is given by
a) $[H^+]=\frac{K_a[acid]}{[salt]}$ b) $[H^+]=K_a[salt]$ c) $[H^+]=K_a[acid]$ d) $[H^+]=\frac{K_a[salt]}{[acid]}$ ☐

27. While charging lead storage battery
a) $PbSO_4$ on cathode is reduced to Pb b) $PbSO_4$ on anode is oxidised to PbO_2
c) $PbSO_4$ on anode is reduced to Pb d) $PbSO_4$ on cathode is oxidised to Pb ☐

28. Conductivity of a saturated solution of a sparingly soluble salt AB (1 : 1 electrolyte) at 298K is $1.85\times10^{-6}Sm^{-1}$ solubility product of the salt AB at 298K is $(\wedge_m)_{AB} = 14\times10^{-3}Sm^2mol^{-1}$

a) 5.7×10^{-12} b) 1.32×10^{-12} c) 7.5×10^{-12} d) 1.74×10^{-12} ☐

29. For the cell reaction:

$2Fe^{2+}(aq) + 2I^-(aq) \rightarrow 2Fe^{2+}(aq) + I_2(aq)$

$E^0_{cell} = 0.24V$ at 298K. The standard Gibbs energy (ΔG^0) of the cell reaction is

a) $-46.32\,kJmol^{-1}$ b) $-23.16\,kJmol^{-1}$ c) $46.32\,kJmol^{-1}$ d) $23.16\,kJmol^{-1}$ ☐

30. To stop bleeding from an injury, ferric chloride can be applied. Which of the following comment justifies the statement?

a) It is not true, ferric chloride is poison.

b) It is true, Fe^{3+} ions coagulate blood which is a negatively charged sol.

c) It is not true; ferric chloride is ionic and gets into the blood stream.

d) It is true, coagulation takes place because a formation of negatively charged sol with $C\ell^-$ ☐

31. Which one is not a surfactant?

a) $CH_3-(CH_2)_{15}-\overset{+}{N}-(CH_3)_2CH_2Br$ b) $CH_3-(CH_2)_{15}-NH_2$

c) $CH_3-(CH_2)_{16}-CH_2OSO_3^-Na^+$ d) $CHO-(CH_2)_{14}-CH_2-COO^-Na^+$ ☐

32. If x is the amount of adsorbate and m is the amount of adsorbent, which of the following relations is not related to adsorption process?

a) $\frac{x}{m} = f(P)$ at constant T b) $\frac{x}{m} = f(T)$ at constant P

c) $P = f(T)$ at constant $\frac{x}{m}$ d) $\frac{x}{m} = PT$ ☐

33. Which is used to oxidise alcohol into acetic acid?

a) Urease b) Zymase c) Micoderma aceti d) Pepsin ☐

34. Decomposition of N_2O on hot Platinum surface is an example for

a) zero order reaction b) first order reaction

c) second order reaction d) pseudo first order reaction ☐

35. Ethanol $\xrightarrow{PC\ell_5}$ X $\xrightarrow[KOH]{alc}$ Y $\xrightarrow[298K]{H_2SO_4/H_2O}$ Z. The 'Z' is

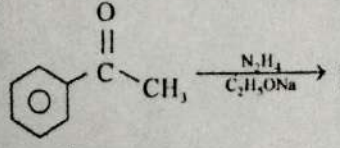
a) ethane b) ethoxy ethane c) ethylbisulphite d) ethanol ☐

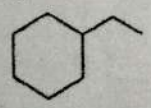
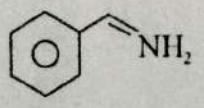
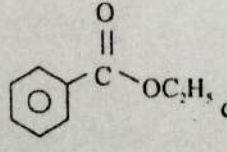
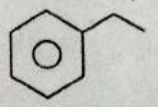
36. An organic compound (A) with the formula C_3H_8O reacts completely with two moles of HI to form X and Y. When Y is boiled with aqueous alkali it forms Z. 'Z' answers iodoform test. The compound (A) is

a) propan - 2 ol b) propan - 1 ol c) ethoxy ethane d) methoxy ethane ☐

37. On reacting with neutral ferric chloride, phenol gives

a) red colour b) violet colour c) dark green colour d) no colouration ☐

38.  product. The product is

a)  b)  c)  d)  ☐

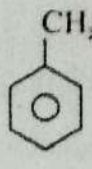
39. Phenyl methanol reacts with con.NaOH to give X and Y. X reacts with metallic sodium and liberates hydrogen X, Y are

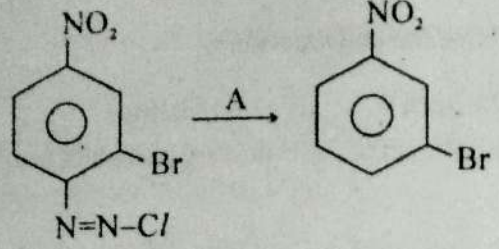
a) Sodium benzoate and phenol b) Sodium benzoate and phenyl methanol

c) Phenyl methanol and sodium benzoate d) none of these ☐

40. Ethanoic acid $\xrightarrow{PCl_5}$ X $\xrightarrow[\text{Anhy } AlCl_3]{C_6H_6}$ Y $\xrightarrow[(ii)H_2O]{(i)CH_3MgBr}$ Z.

a) $(CH_3)_2C(OH)C_6H_5$ b) $CH_3CH(OH)C_6H_5$

c) $CH_3CH(OH)CH_2-CH_3$ d) 

41.  What is 'A'?

a) H_3PO_2, H_2O b) H^+ / H_2O c) $HgSO_4 / H_2SO_4$ d) Cu_2Cl_2

42. Which does not undergo acetylation?

a) t-butylamine b) Ethylamine c) Diethylamine d) Triethylamine

43. Ammonium salt of Benzoic acid when heated with P_2O_5 the product formed is reduced and then treated with $NaNO_2 / HCl$ at low temperature. The final compound formed is

a) Benzenediazonium chloride b) Benzyl alcohol

c) Phenol d) Nitrosobenzene

44. Which of the following vitamin is water soluble?

a) Vitamin E b) Vitamin K c) Vitamin A d) Vitamin B

45. Glucose is an aldose. Which of the following reaction is not expected with glucose?

a) It does not form oxime b) It does not react with Grignard reagent

c) It does not form osazones d) It does not reduce Tollen's reagent

46. Which of the following amino acids is achiral?

a) Alanine b) Leucine c) Proline d) Glycine

47. Which of the following is analgesic?

a) Streptomycin b) Chloromycetin c) Aspirin d) Penicillin

48. Drugs that bind to the receptor site and inhibit its natural function is called

a) antagonists b) agonists c) enzymes d) molecular targets

49. Terylene is an example of

a) polyamide b) polythene c) polyester d) polysaccharide

50. The self condensation reaction of Ethyl acetate and Sodium ethoxide giving Ethylacetoacetate is called as

a) Perkin reaction b) esterification reaction

c) Claisen's condensation d) benzoin condensation

XII-OT-24 CHE-9

Name: Section: Reg.No

One Mark Test - 9

Standard XII

CHEMISTRY

Time: 1.00 hr. Marks: 50

Choose and write the correct answer: 50x1=50

1. Bauxite has the composition
   a) Al_2O_3 b) $Al_2O_3.nH_2O$ c) $Fe_2O_3.2H_2O$ d) none of these
2. Considering Ellingam diagram, which of the following metals can be used to reduce alumina?
   a) Fe b) Cu c) Mg d) Zn
3. Which of the following is not thermodynamically feasible?
   a) $Cr_2O_3 + 2Al \rightarrow Al_2O_3 + 2Cr$ b) $Al_2O_3 + 2Cr \rightarrow Cr_2O_3 + 2Al$
   c) $3TiO_2 + 4Al \rightarrow 2Al_2O_3 + 3Ti$ d) None of these
4. Boric acid is an acid because its molecule
   a) contains replaceable H^+ ion b) gives up a proton
   c) combines with proton to give a water molecule d) accepts OH^- from water releasing proton
5. Carbon atoms in fullerene with the formula C_{60} have
   a) sp^3 hybridised b) sp hybridised
   c) sp^2 hybridised d) Partially sp^2 and partially sp^3 hybridised
6. Duralumin is an alloy of
   a) Cu, Mn b) Cu, Al, Mg c) Al, Mn d) Al, Cu, Mn, Mg
7. What is true regarding Nitrogen?
   a) Least electro negative element b) Has low ionisation enthalpy than Oxygen
   c) d - orbitals available d) Ability to form $p\pi - p\pi$ bonds with itself
8. Most easily liquefiable gas is
   a) Ar b) Ne c) He d) Kr
9. Which is the correct order of acidity in the following?
   a) $HClO_2 < HClO < HClO_3 < HClO_4$ b) $HClO_4 < HClO_2 < HClO < HClO_3$
   c) $HClO_3 < HClO_4 < HClO_2 < HClO$ d) $HClO < HClO_2 < HClO_3 < HClO_4$
10. Which of the following d block element has half filled penultimate d sub shell as well as half filled valence sub shell?
    a) Cr b) Pd c) Pt d) None of these
11. Which has the same number of unpaired electrons as present in V^{3+}?
    a) Ti^{3+} b) Fe^{3+} c) Ni^{2+} d) Cr^{3+}
12. Which one of the following statements related to lanthanons is incorrect?
    a) Europium shows +2 oxidation state
    b) The basicity decreases as the ionic radius decreases from Pr to Lu
    c) All lanthanons are much more reactive than Aluminium
    d) Ce^{4+} solutions are widely used as oxidising agents in volumetric analysis

13. The sum of primary valence and secondary valence of the metal M in the complex $[M(en)_2(OX)]Q$ is

a) 3 b) 6 c) – 3 d) 9

14. Crystal field stabilization energy for high spin d^5 octahedral complex is

a) $-0.6\Delta_0$ b) 0 c) $2(p-\Delta_0)$ d) $2(p+\Delta_0)$

15. How many geometrical isomers are possible for $[Pt(Py)(NH_3)(Br)(C\ell)]$?

a) 3 b) 4 c) 0 d) 15

16. Match the following.

Column I		Column II	
A)	Mond's process	i)	Silicon
B)	Van Arkel method	ii)	Zirconium
C)	Zone refining	iii)	Silver
D)	Electrolytic refining	iv)	Nickel

	A	B	C	D
a)	iv	ii	i	iii
b)	i	iv	iii	ii
c)	ii	i	iv	iii
d)	iii	iv	ii	i

17. The incorrect statement regarding Aluminium chloride.

a) It is a colourless, hygroscopic substance b) It behaves like a Lewis acid

c) It is prepared by McAfee process d) It reacts with NaOH and gives $A\ell(OH)_3$

18. 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 A_xB_y is

a) AB b) AB_3 c) A_3B d) A_8B_6

19. The yellow colour in NaCl crystal is due to

a) excitation of electrons in F centres b) reflection of light from $C\ell^-$ ion on the surface

c) refraction of light from Na^+ ion d) all of the above

20. If 'a' is the edge length of the cubic system, then the ratio of radii of spheres in sc, bcc, fcc will be

a) $\left(\frac{1}{2}a:\frac{\sqrt{3}}{2}a:\frac{\sqrt{2}}{2}a\right)$ b) $\left(\sqrt{1}a:\sqrt{3}a:\sqrt{2}a\right)$ c) $\left(\frac{1}{2}a:\frac{\sqrt{3}}{4}a:\frac{1}{2\sqrt{2}}a\right)$ d) $\left(\frac{1}{2}a:\sqrt{3}a:\frac{1}{\sqrt{2}}a\right)$

21. $A \rightarrow B$. In this first order reaction the rate constant is 'x' min^{-1}. If the initial concentration of 'A' is 0.01M, the concentration of 'A' after one hour is

a) $0.01e^{-x}$ b) $1\times10^{-2}(1-e^{-60x})$ c) $(1\times10^{-2})e^{-60x}$ d) none of these

22. 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

23. 75% of a first order reaction was completed in 60 minutes. If then, 50% of the same reaction would be completed in

a) 20 minutes b) 30 minutes c) 35 minutes d) 75 minutes

24. Concentration of the Ag^+ ions in a saturated solution of $Ag_2C_2O_4$ is 2.24×10^{-4} $mol.L^{-1}$, then the solubility product of $Ag_2C_2O_4$ is

a) $2.42\times10^{-8}mol^3L^{-3}$ b) $2.66\times10^{-12}mol^3L^{-3}$

c) $4.5\times10^{-11}mol^3L^{-3}$ d) $5.619\times10^{-12}mol^3L^{-3}$

25. The aqueous solution of Sodium formate, Anilinium chloride and Potassium cyanide are respectively
a) acidic, acidic, basic b) basic, acidic, basic
c) basic, natural, basic d) none of these

26. Which of the following relation is correct for the degree of hydrolysis of ammonium acetate?
a) $h = \sqrt{\frac{K_h}{C}}$ b) $h = \sqrt{\frac{K_a}{K_b}}$ c) $h = \sqrt{\frac{K_h}{K_a.K_b}}$ d) $h = \sqrt{\frac{K_a.K_b}{K_h}}$

27. The number of electrons that have a total charge of 9650C is
a) 6.22×10^{23} b) 6.022×10^{24} c) 6.022×10^{22} d) 6.022×10^{-34}

28. Among the following cells I) Leclanche cell II) Nickel - cadmium cell III) Lead storage battery IV) Mercury cell, the primary cells are
a) I, IV b) I, II c) III, IV d) II, III

29. Assertion : Pure iron when heated in dry air is convertered with a layer of rust.
Reason : Rust has the composition Fe_3O_4.
a) Both assertion, reason are true and reason is the correct explanation of assertion.
b) Both assertion, 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.

30. Which of the following is incorrect for physisorption?
a) Reversible b) Increases with increase in temperature
c) Low heat of adsorption d) Increases with increase in surface area

31. The phenomenon observed when a beam of light is passed through a collodial solution is
a) Cataphoresis b) Electrophoresis c) Coagulation d) Tyndall effect

32. Collodion is a 4% solution of which one of the following in Alcohol - Ether mixture?
a) Nitroglycerine b) Cellulose acetate c) Glycoldinitrate d) Nitrocellulose

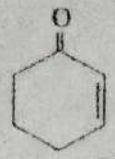
33. In correct statement about covalent crystals.
a) These are covalent network crystals b) Diamond, Silicon carbide are the examples
c) These are very hard d) These are very good electrical conductors

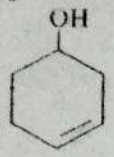
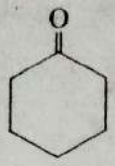
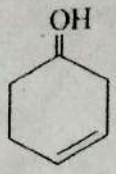
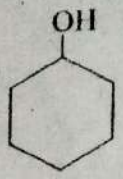
34. Which of the following is dependent on the initial concentration of the reactant?
a) Rate of a reaction b) Rate constant c) Half life period d) None of these

35. Which reacts with phenol to give salicylaldehyde after hydrolysis?
a) Dichloromethane b) Trichloroethane c) Trichloromethane d) CO_2

36. Assertion : Phenol is more acidic than ethanol.
Reason : Phenoxide ion is resonance stablised.
a) Both assertion, reason are true and reason is the correct explanation for the assertion.
b) Both assertion, reason are true but reason is not the correct explanation for the assertion.
c) Assertion is true but reason is false. d) Both assertion and reason are false.

37. Which of the following is used as antifreeze in automobile radiators?
a) Methanol b) Ethanol c) Neopentyl alcohol d) Ethane - 1, 2 - diol

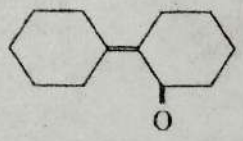
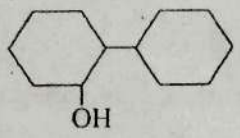
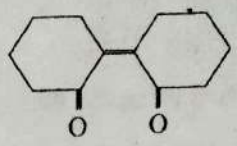
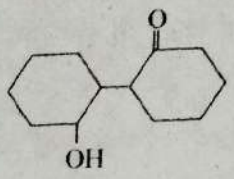
38.  $\xrightarrow[\text{Pd/c, ethanol}]{H_2\text{(gas, atm)}}$ 'A'. The structure of 'A' is

a)  b)  c)  d)  ☐

39. $CH \equiv CH \xrightarrow[HgSO_4]{H_2SO_4} X$. The product 'X' will not give

a) Tollen's test b) Victor Meyer test c) Iodoform test d) Fehling solution test ☐

40. Cyclohexanone when heated after its aldol condensation reaction gives

a)  b)  c)  d)  ☐

41. Which is used to convert nitrobenzene into aniline?

a) $Sn / HC\ell$ b) $ZnHg / NaOH$ c) $Zn / NH_4C\ell$ d) All of these ☐

42. The product formed when an aldehyde reacts with primary amine

a) carboxylic acid b) aromatic acid c) schiff's base d) ketone ☐

43. $C_6H_5NO_2 \xrightarrow{Fe/HC\ell} A \xrightarrow[273K]{NaNo_2/HC\ell} B \xrightarrow[283K]{H_2O} C$. Compound 'C' is

a) C_6H_5OH b) $C_6H_5CH_2OH$ c) C_6H_5CHO d) $C_6H_5NH_2$ ☐

44. Which of the following is a non - reducing sugar?

a) Glucose b) Sucrose c) Maltose d) Lactose ☐

45. The number of sp^2 and sp^3 hybridised carbon in Fructose are respectively

a) 1 and 4 b) 4 and 2 c) 5 and 1 d) 1 and 5 ☐

46. Chemically, insulin hormone is a

a) Fat b) Steroid c) Protein d) Carbohydrate ☐

47. Which of the following is a co - polymer?

a) Orlon b) PHBV c) PVC d) Teflon ☐

48. The monomer of neoprene is

a) $CH_2 - \underset{\underset{C\ell}{|}}{C} - CH = CH_2$ b) $CH_2 = CH - C \equiv CH$

c) $CH_2 = CH - CH = CH_2$ d) $CH_2 = \underset{\underset{CH_3}{|}}{C} - CH = CH_2$ ☐

49. Example for antifertility drug is

a) Mestranol b) Seldon c) Celvarson d) Chloramphenicol ☐

50. Which of the following will give Alcohol on reaction with Nitrous acid?

a) Primary amine b) Secondary amine c) Tertiary amine d) All of these ☐

XII-OT-24 CHE-10

Name: Section: Reg.No

One Mark Test - 10

Standard XII

CHEMISTRY

Time: 1.00 hr. Marks: 50

Choose and write the correct answer: 50x1=50

1. Which one of the following reaction represents calcination?
   a) $2Zn + O_2 \rightarrow 2ZnO$ b) $2ZnS + 3O_2 \rightarrow 2ZnO + 2SO_2$
   c) $MgCO_3 \rightarrow MgO + CO_2$ d) Both (a) and (c) ☐
2. Which of the following is used for concentrating ore in metallurgy?
   a) Leaching b) Roasting c) Froth flotation d) Both (a) and (c) ☐
3. Which of the following plot gives Ellinham diagram?
   a) ΔS Vs T b) ΔG^0 Vs T c) ΔG^0 Vs $\frac{1}{T}$ d) ΔG^0 Vs T ☐
4. An aqueous solution of borax is
   a) neutral b) acidic c) basic d) amphoteric ☐
5. The element which does not show catenation is
   a) Carbon b) Silicon c) Lead d) Germanium ☐
6. The geometry at which carbon atoms in diamond are bonded to each other is
   a) tetrahedral b) hexagonal c) octahedral d) none of these ☐
7. An element belongs to group 15 and 3rd period in the periodic table, its electronic configuration would be
   a) $1s^2 2s^2 2p^4$ b) $1s^2 2s^2 2p^3$ c) $1s^2 2s^2 2p^6 3s^2 3p^2$ d) $1s^2 2s^2 2p^6 3s^2 3p^3$ ☐
8. Which of the following compound is not formed?
   a) $XeOF_4$ b) XeO_3 c) XeF_2 d) NeF_2 ☐
9. Which of the following is strongest acid among all?
   a) HI b) HF c) HBr d) HCl ☐
10. The magnetic moment of Mn^{2+} ion is
    a) 5.92 BM b) 2.80 BM c) 8.95 BM d) 3.90 BM ☐
11. Which of the following statements is not true?
    a) On passing H_2S, through $K_2Cr_2O_7$ solution, a milky colour is observed.
    b) $Na_2Cr_2O_7$ is prefered over $K_2Cr_2O_7$ in volumetric analysis.
    c) $K_2Cr_2O_7$ solution in acidie medium is orange in colour.
    d) $K_2Cr_2O_7$ solution becomes yellow on increasing the pH beyond 7. ☐
12. Which of the following lanthanoid ions is diamagnetic?
    a) Eu^{2+} b) Yb^{2+} c) Ce^{2+} d) Sm^{2+} ☐
13. In which of the following coordination entities the magnitude of Δ_0 is maximum?
    a) $[Co(CN)_6]^{3-}$ b) $[Co(C_2O_4)_3]^{3-}$ c) $[Co(H_2O)_6]^{3+}$ d) $[Co(NH_3)_6]^{3+}$ ☐

14. A complex in which the oxidation number of the metal is zero is
    a) $K_4[Fe(CN)_6]$ b) $[Fe(CN)_3(NH_3)]$
    c) $[Fe(CO)]_5$ d) both (b) and (c)

15. Which of the following is paramagnetic in nature?
    a) $[Zn(NH_3)_4]^{2+}$ b) $[Co(NH_3)_6]^{3+}$ c) $[Ni(H_2O)_6]^{2+}$ d) $[Ni(CN)_4]^{2}$

16. According to Werner's theory, which is an incorrect statement?
    a) Secondary valence denotes the coordination number
    b) Primary valence denotes the oxidation state of the metal atom
    c) Primary valence are directional
    d) If secondary valence is 4, then it has tetrahedral geometry

17. $HO-\overset{\overset{S}{\|}}{\underset{\underset{O}{\|}}{S}}-OH$. The name of this acid is
    a) Sulphuric acid b) Thiosulphuric acid c) Disulphuric acid d) Disulphurous acid

18. Assertion : Monoclinic sulphur is an example of monoclinic crystal system.
    Reason : For a monoclinic system, $a \neq b \neq c$ and $\alpha = \gamma = 90^\circ, \beta \neq 90^\circ$.
    a) Both assertion, reason are true and reason is the correct explanation of assertion.
    b) Both assertion, 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.

19. The radius of an atom is 300 pm, if it crystalizes in a fcc cubic lattice, the length of the edge of the unit cell is
    a) 488.5 pm b) 848.5 pm c) 884.5 pm d) 484.5 pm

20. The crystal with a metal deficiency defect is
    a) NaCℓ b) FeO c) ZnO d) KCℓ

21. $X \rightarrow$ product is a zero order reaction, with an initial concentration 0.02M, has a half life of 10 min, if one starts with the concentration 0.04M, then the half life is
    a) 10 sec b) 5 min c) 20 min d) cannot be predicted

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

23. The rate constant of a reaction is $5.8 \times 10^{-2} s^{-1}$. The order of the reaction is
    a) first order b) zero order c) second order d) third order

24. 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^{-10} c) 0.125×10^{-15} d) 0.5×10^{-10}

25. Which of the fluro compound is most likely to behave as a Lewis base?
    a) BF_3 b) PF_3 c) CF_4 d) SiF_4

26. The pH of 10^{-5}M KOH solution will be
    a) 9 b) 5 c) 19 d) none of these

27. Faraday's constant is defined as
a) charge carried by 1 electron
b) charge carried by one mole of electrons
c) charge required to deposit one mole of substance
d) charge carried by 6.22×10^{10} electrons.

28. The number of electrons delivered at the cathode during electrolysis by a current of 1 A in 60 sec is (charge of an electron = 1.6×10^{-19} C)
a) 6.22×10^{23} b) 6.022×10^{20} c) 3.75×10^{20} d) 7.48×10^{23}

29. $BrO_4^- \xrightarrow{1.82V} BrO_3^- \xrightarrow{1.5V} HBrO \xrightarrow{1.595V} Br_2 \xrightarrow{1.0652V} Br^-$. Then the species undergoing disproportionation is
a) Br_2 b) BrO_4^- c) BrO_3^- d) HBrO

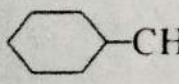
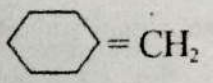
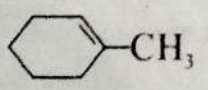
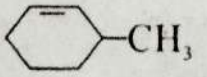
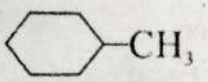
30. Fog is a collidal solution of
a) solid in gas b) gas in gas c) liquid in gas d) gas in liquid

31. The most effective electrolyte for the coagulation of As_2S_3 Sol is
a) $NaC\ell$ b) $Ba(NO_3)_2$ c) $K_3[Fe(CN)_6]$ d) $A\ell_2(SO_4)_3$

32. Which one of the following is an example for homogeneous catalysis?
a) Manufacture of Ammonia by Haber's process.
b) Manufacture of Sulphuric acid by contact process.
c) Hydrogenation of oil
d) Hydrolysis of Sucrose in the presence of dil.HCl

33. If ionic product > K_{sp}, then the solution is
a) saturated solution
b) super saturated solution
c) unsaturated solution
d) super unsaturated solution

34. In a first order reaction, the half life period is 5 minutes. Then the time required for the completion of 99.9% reaction is
a) 5 minutes b) 10 minutes c) 50 minutes d) 100 minutes

35.  on treatment with con. H_2SO_4, predominately gives
a) 
b) 
c) 
d) 

36. Assertion : Phenol is more reactive than Benzene towards electrophilic substitution reaction.
Reason : In the case of phenol, the intermediate Arenium ion is more stablized by resonance.
a) Both assertion, reason are true and reason is the correct explanation of assertion.
b) Both assertion, 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.

37. Which of the following will give methyl alcohol on treatment with hot HI?
a) $(CH_3)_3C-O-CH_3$
b) $(CH_3)_2CH-CH_2-O-CH_3$
c) $CH_3(CH_2)_3-O-CH_3$
d) $CH_3-CH_2-\underset{\displaystyle CH_3}{\underset{|}{CH}}-O-CH_3$

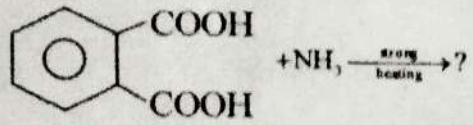
38. Which reagent give nuclephilic addition followed by elimination of water with Acetone?
a) Grignard reagent b) Sn/HCl
c) Slightly acidic hydrazine d) Hydrochloric acid

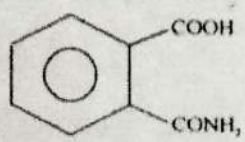
39. Ethanoic acid $\xrightarrow{P/Br_2}$ 2 - bromo ethanoic acid. This reaction is called as
a) Finkelstein reaction b) haloform reaction
c) Hell - Volhard Zelinsky reaction d) none of these

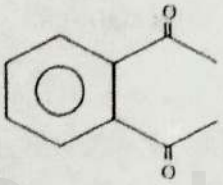
40. Which reacts with 50% NaOH solution to give alcohol and acid?
a) Phenyl methanal b) Ethanal c) Ethanol d) Methanol

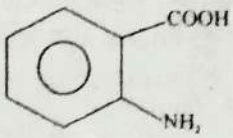
41. Which will not undergo Hofmann bromamide reaction?
a) $CH_3CONHCH_3$ b) $CH_3CH_2CONH_2$ c) CH_3CONH_2 d) $C_6H_5CONH_2$

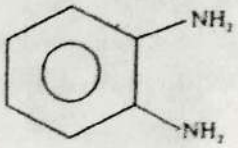
42. Which one of the following is most basic?
a) 2, 4 - dichloroaniline b) 2, 4 - dimethylaniline
c) 2, 4 - dinitroaniline d) 2, 4 - dibromoaniline

43. 

a) 

b) 

c) 

d) 

44. Glucose $\xrightarrow{HCN}$ Product $\xrightarrow{hydrolysis}$ Product $\xrightarrow{(HI+heat)}$ A . The compound 'A' is
a) heptanoic acid b) 2 - iodohexane c) heptane d) heptanol

45. In aqueous solution, amino acids exists as
a) $NH_2-CH(R)COOH$ b) $NH_2-CH(R)COO^-$
c) $\overset{+}{N}H_3-CH(R)-COOH$ d) $\overset{+}{N}H_3-CH(R)-COO^-$

46. $\alpha-D(+)$ Glucose and $\beta-D(+)$ Glucose are
a) epimers b) anomers c) enantiomers d) conformational isomers

47. Aspirin is a / an ..... acid.
a) Acetylsalicyclic b) Benzoylsalicyclic c) Chlorobenzoic d) Anthranilic

48. Assertion : 2 - methyl, 1, 3 - Butadiene is the monomer of natural rubber.
Reason : Natural rubber is formed through anionic addition polymerisation.
a) Both assertion, reason are true and reason is the correct explanation for the assertion.
b) Both assertion, reason are true but reason is not the correct explanation for the assertion.
c) Assertion is true but reason is false. d) Both assertion and reason are false.

49. The mixture of Chloroxylenol and Terphenycol is used as
a) antiseptic b) analgesics c) antibiotic d) antipyretic

50. Anisole is used as .....
a) anaesthetic b) refrigerent c) perfume d) good solvent