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SRI VIDYA MANDIR MATRIC HIGHER SECONDARY SCHOOL - PALACODE

XII - CHEMISTRY ONE MARKS MODEL TEST - I

Time : 60 min   Marks: 60

Answer all the given questions:

1. Which of the metal is extracted by Hall Heroult process

   a) Al   b) Ni   c) Cu   d) Zn

2. Which of the following plot gives Ellingham Diagram?

   a) Δs vs T   **b) $\Delta G°$ vs T**   c) $\Delta G°$ vs 1/T   d) $\Delta G°$ vs T^2

3. An ionic compound AxBy crystallizes in fcc type crystal structure with B ions at the centre of each face and A ion occupying entire of the cube, the correct formula of AxBy is

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

4. The number of carbon atoms per unit cell of diamond is

   a) 8   b) 6   c) 1   d) 4

5. CsCl has bcc arrangements its unit cell edge length is 400 pm, its inter atomic distance is

   a) 400 pm   b) 800 pm   c) $\sqrt{3}$ X 100 pm   **d) $\left(\frac{\sqrt{3}}{2}\right)$ X 400 pm**

6. For the reaction $2NH_3 \rightarrow N_2 + 3H_2$ if $\frac{-d[NH_3]}{dt} = K_1[NH_3]$, $\frac{d[N_2]}{dt} = K_2[NH_3]$, $\frac{d[H_2]}{dt} = K_3[NH_3]$, then the relation between K_1, K_2 and K_3 is

   a) $K_1 = K_2 = K_3$ b) $K_1 = 3K_2 = 2K_3$ **c) $1.5K_1 = 3K_2 = K_3$**   d) $2K_1 = K_2 = 3K_3$

7. 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

8. pH of Saturated solution of $Ca(OH)_2$ is 9, The solubility product (Ksp) of $Ca(OH)_2$

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

9. Which of the following fluro compounds is most likely to behave as a Lewis base?

   a) BF_3 **b) PF_3**   c) CF_3 d) SiF_4

10. What is the pH of the resulting when equal volumes of 0.1M NaOH and 0.01M HCl are mixed?

    a) 2.0   b) 3   c) 7.0   **d) 12.65**

11. The number of electrons that have a total charge of 9650 coulombs is

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

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

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

13. Among the following cells.

    (I) Leclanche cell   (II) Nickel - Cadmium cell (III) Lead storage battery   (IV) Mercury cells

    Primary cells are

    a) **I and IV**   b) I and III   c) III and IV   d) II and III

14. For Freundlich isotherm a graph of log $^X/_m$ is plotted against log P. The slope of the line and its y-axis intercept respectively corresponds to

    a) $^1/_n$, K   b) log $^1/_n$, K   **c) $^1/_n$, log K**   d) log $^1/_n$, log K

15. 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**

16. Which among the following is not a borane?

    a) B_2H_6 **b) B_3H_6**   c) B_4H_{10} d) None of these

17. 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

18. The magnetic moment of Mn^{2+} ion is

     a) 5.92 BM   b) 2.80 BM   c) 8.95 BM   d) 3.90 BM

19. Which kind of isomerism is possible for a complex $[Co(NH_3)_4Br_2]Cl$?

     a) geometrical and ionization   b) geometrical and optical

     c) optical and ionization   d) geometrical only

20. Which of the following complexes have a maximum number of unpaired electrons?

     a) $[Ni(CO)_4]$ b) $[Ag(CN)_2]^-$ c) $[CuBr_4]^{2-}$ **d) $[Co(NH_3)_4(NO_2)_2]^+$**

21. 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

22. The correct name for the complex ion $[CoCl(ONO)(en)_2]^+$ is:

     a) chlorobis (ethane -1,2-diamine) nitrito-kO- cobaltate (III) ion

     b) chlorodi (ethane -1,2-diamine) nitrito-kO-cobalt (III) ion

     c) chloronitrito-kO-diethyldiamine cobaltate (III) ion

     d) chlorobis (ethane -1,2-diamine) nitrito-kO- cobalt (III) ion

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. Hair cream is

     a) gel   **b) emulsion**   c) Solid Sol   d) Sol

25. Which one of the following is the strongest acid

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

26. Which one of the following reaction is an example of disproportionation reaction

     a) Aldol condensation   **b) Cannizaro reaction**   c) Benzoin condensation   d) none of these

27. Which one of the following is most basic?

     a) 2,4 - dichloroaniline   **b) 2,4 - dimethyl aniline**   c) 2,4 - dinitroaniline   d) 2,4 - dibromo aniline

28. α - D(+) glucose and β - D(+) glucose are

     a) Epimers   **b) Anomers**   c) Enantiomers   d) conformational isomers

29. Nylon is an example of

     a) Polyamide   b) Polythene   c) Polyester   d) Poly saccharide

30. The hydrogen ion concentration of a buffer solution consisting of a weak acid and its salts is given by

     a) $[H^+] = \dfrac{K\,[acid]}{[salt]}$ b) $[H^+] = K\,[salt]$ c) $[H^+] = K\,[acid]$ d) $[H^+] = \dfrac{K\,[salt]}{[acid]}$

31. The molar conductivity of a $0.5 \, mol \, dm^{-3}$ solution of $AgNO_3$ with electrolytic conductivity of $5.76 \times 10^{-3} \, S\,cm^{-1}$ at 298 K is

     a) $2.88 \, S\,cm^2\,mol^{-1}$ **b) $11.52 \, S\,cm^2\,mol^{-1}$**   c) $0.086 \, S\,cm^2\,mol^{-1}$ d) $28.8 \, S\,cm^2\,mol^{-1}$

32. **Ans: d)**
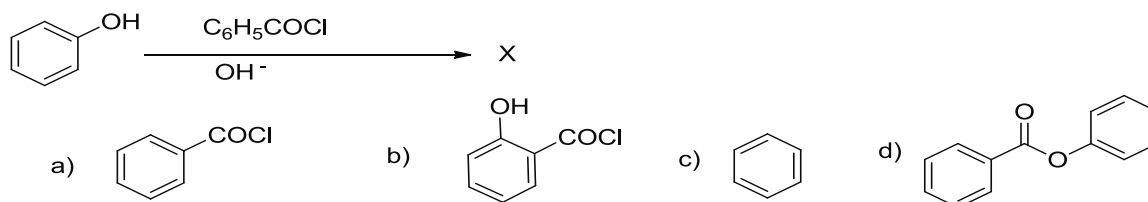
33. Ethanoic acid $\xrightarrow{P/Br_2}$ 2 - bromoethanoic acid. This reaction is called

     a) Finkelstein reaction   b) Haloform reaction

     c) Hell –Volhard –Zelinsky reaction   d) none of these

34. IUPAC name for the amine

$$CH_3 - N\begin{matrix} | \\ | \\ CH_3 \end{matrix} \overset{\overset{CH_3}{|}}{\underset{\underset{C_2H_5}{|}}{C}} - CH_2 - CH_3$$
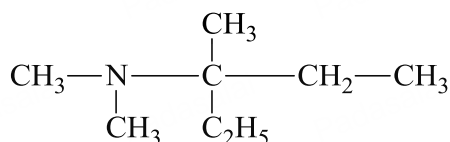
a) 3 – Bimethylamino – 3 – methyl pentane

b) 3 (N,N – Triethyl) – 3- amino pentane

c) 3 – N,N – trimethyl pentanamine

d) 3 – (N,N – Dimethyl amino) – 3- methyl pentane

35. In aqueous solution of amino acids mostly exists in,

a) $NH_2\text{-}CH(R)\text{-}COOH$ b) $NH_2\text{-}CH(R)\text{-}COO^-$ c) $H_3N^+\text{-}CH(R)\text{-}COOH$ **d) $H_3N^+\text{-}CH(R)\text{-}COO^-$**

36. The magnetic moment of Cr^{+3} is,

(a) 1.73 BM   (b) 2.73 BM   **c) 3.87 BM**   (d) 4.90 BM

37. The structure of diborane contains

(a) four (2C -2e) and two (3C -2e) bonds   (b) two (2C -2e) and four (3C -2e) bonds

(c) two (2C -2e) and two (3C bonds   (d) four (2C -2e) and four (3C -2e) bonds

38. The stability of + 1 oxidation state increases in the sequence is

(a) Ga < In < Al < Tl   **(b) Al < Ga < In < Tl**   (c) Tl < In < Ga < Al   (d) In < Tl < Ga < Al

39. Which of the following is the strongest Oxidizing agent?

(a) Cl_2 **(b) F_2**   (c) Br_2 (d) I_2

40. The compound used in smoke screen is

(a) PH_3   (b) NH_3 (c) AsH_3 (d) BiH_3

41. The metal used to prevent rusting of Iron and steel is

(a) Au   **(b) Zn**   (c) Ag   (d) all of these

42. Which of the following statement is incorrect?

(a) Nickel is refined by Mond's process   (b) Titanium is refined Van -Arkel's process

(c) Zinc blende (ZnS) is concentrated by froth flotation method

(d) In the metallurgy of gold, the metal is leached with dilute NaCl solution

43. **Assertion:** Ce^{4+} is used as an oxidizing agent in volumetric analysis.

Reason: Ce^{4+} has the tendency of attaining +3 oxidation state

(a) Both Assertion and reason are true and reason is the correct explanation of assertion

(b) Both Assertion and reason are true and reason is not the correct explanation of assertion

(c) Assertion is true but reason is false   (d) Both Assertion and reason are false

44. 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) $2(P + \Delta_0)$

45. Zeise's Salt is

(a) $[Pt\ (NH_3)_2]\ Cl_3$ **(b) $K\ [Pt\ Cl_3\ (C_2H_4)]$**   (c) $[Pt\ (NH_3)_4]\ [Pt\ Cl_4]$ (d) $K_4\ [Fe\ (CN)_6]$

46. The radius of an atom is 300pm, If it crystallizes in a Face Centered Cubic lattice then its edge length is

(a) 488.5 pm   **(b) 848.5 pm**   (c) 884.5 pm   (d) 484.5 pm

47. Solid CO_2 is an example of

(a) Covalent solid   (b) metallic solid   **(c) Molecular solid**   (d) Ionic solid

48. If 50% of a first order reaction is completed in 60 minutes, 75% of the same reaction would complete in

(a) 90min   (b) 30min   **(c) 120min**   (d) 180min

49. If the rate constant of a reaction is 5.8×10^{-2} mol $L^{-1}\ S^{-1}$ then the reaction follows

(a) First order   **(b) Zero order**   (c) Second order   (d) Third order

50. The addition of a catalyst in a chemical reaction alters

(a) Enthalpy   **(b) Activation energy**   (c) Entropy   (d) Internal energy

51. 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

52. Equivalent weight of $KMnO_4$ in acidic medium is

    a) 3.16   **b) 31.6**   c) 158   d) 52.67

53. $[FeF_6]^{4-}$ is paramagnetic because

    a) F⁻ is a weaker ligand   b) F⁻ is a strong ligand

    c) F⁻ is a ambidentate ligand   d) F⁻ is a chelating ligand

54. Insulin, a hormone chemically is

    a) Fat   b) Steroid   **c) Protein**   d) Carbohydrates

55. How much time will be taken for 20 g to reduce 5 g? [$K=2\times10^{-3}s^{-1}$ (First order reaction)].

    a) 693.1 s   b) 693.1 s^{-1} c) 6.931 s   d) 6.931 s^{-1}

56. The pH of an aqueous solution is Zero. The solution is

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

57. Calculate the standard emf of the cell, provided the standard reduction potentials of cathode and anode are −0.763 V and 0.80 V.

    a) −1.563 V   b) 0.037 V   c) −0.610 V   d) None of these

58. Which among the following does not affect adsorption?

    a) surface area   b) catalyst   c) temperature   **d) pressure**

59. Order of reactivity of alcohol towards sodium metal is

    a) primary < secondary > tertiary   **b) primary > secondary > tertiary**

    c) primary < secondary < tertiary   d) primary > secondary < tertiary

60. Which inert gas used to reduce cancer growth?

    a) Helium   b) Neon   c) Xenon   d) Radon

SRI VIDYA MANDIR MATRIC HIGHER SECONDARY SCHOOL - PALACODE

XII - CHEMISTRY ONE MARKS MODEL TEST - II
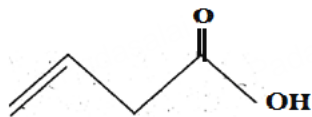
Time : 60 min   Marks: 60

Answer all the given questions:

1. Bauxite has the composition :

   (a) Al_2O_3 **(b) $Al_2O_3 . 2H_2O$**   (c) $Fe_2O_3 . 2H_2O$ (d) $Al_2Si_2O_5 (OH)_4$

2. All the elements of group 17 and 18 are :

   (a) metalloids   (b) metals   **(c) non-metals**   (d) both (a) and (b)

3. 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 π - p π - bonds with itself**

4. Common isotope of iodine is

   (a) I^{19} (b) I^{35} (c) I^{79} **(d) I^{127}**

5. Equivalent weight of $KMnO_4$ in neutral medium is

   (a) 31.6   **(b) 52.67**   (c) 158   (d) 52.76

6. Which type of isomerism is exhibited by $[Pt(NH_3)_2Cl_2]$?

   (a) Coordination isomerism   (b) Linkage isomerism

   (c) Optical isomerism   **(d) Geometrical isomerism**

7. In Naphthalene, constituent-molecules are held together by :

   (a) Electrostatic attraction   **(b) London forces**

   (c) Hydrogen bond   (d) Strong dipole - dipole interaction

8. **Assertion:** Rate of reaction doubles when the concentration of the reactant is doubled 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

9. Match the following.

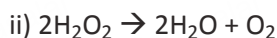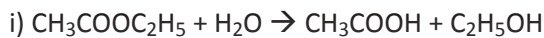 | (1) | Lewis acids | (i) | Gives H^+ in water |
(2)	Lowry-Bronsted Theory	(ii)	$Ka = \alpha^2C$
(3)	Arrhenius Concept	(iii)	Carbonium ion
(4)	Ostwald dilution law	(iv)	Has a tendency to donate proton

   (a) (1)-(iii), (2)-(iv), (3)-(i), (4)-(ii)

   (b) (1)-(iv), (2)-(iii), (3)-(ii), (4)-(i)

   (c) (1)-(ii), (2)-(iv), (3)-(i), (4)-(iii)

   (d) (1)-(i), (2)-(iv), (3)-(iii), (4)-(ii)

10. 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**

11. The oxidising agent used in Swern oxidation is

    (a) Fenton's reagent   **(b) dimethyl sulfoxide**   (c) alkaline KMnO4   (d) periodic acid

12. 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**

13. The product formed by the reaction of aldehyde with a primary amine

    (a) Carboxylic acid   (b) Aromatic acid   **(c) Schiff's base**   (d) Ketone

14. Human cannot use cellulose as food because :

    (a) Human digestive systems do not contain the necessary enzyme called cellulase to hydrolyse cellulose.

    (b) Human digestive systems contain the necessary enzyme called cellulase to hydrolyse cellulose.

    (c) Human digestive systems contain the necessary enzyme called glycosidase to hydrolyse cellulose.

    (d) Human digestive systems contain the necessary enzyme called glycogen to hydrolyse cellulose.

15. Dettol is the mixture of,

    (a) Chloroxylenol and bithionol   **(b) Chloroxylenol and α - terpineol**

    (c) Phenol and Iodine   (d) terpineol and bithionol

16. Which one of the following ore is best concentrated by froath - floatation method?

    a) Magnetite   b) Haematite   **c) Galena**   d) Cassiterite

17. Which compound is used as flux in metallurgy?

    a) Boric acid   **b) Borax**   c) Diborane   d) BF_3

18. The shape of $XeOF_4$ is

    a) T Shaped   b) Pyramidal   c) Square planar   **d) Square pyramidal**

19. How many moles of acidified $KMnO_4$ required to oxidise one mole of oxalic acid?

    a) 5   b) 0.6   c) 1.5   **d) 0.4**

20. A ligand can also be regarded as

    a) Lewis acid   b) Bronsted base   **c) Lewis base**   d) Bronsted acid

21. The fraction of the total volume occupied by the atoms in a fcc is

    a) $\frac{\pi}{6}$ **b) $\frac{\pi}{3\sqrt{2}}$**   c) $\frac{\pi}{4}$ d) $\frac{\sqrt{3}\,\pi}{8}$

22. The half life period of a radioactive element is 140 days. After 280 days 1 g of element will be reduced to which amount of the following?

    a) $\frac{1}{4}$ b) $\frac{1}{16}$ c) $\frac{1}{8}$ d) $\frac{1}{2}$

23. Among the following, the coloured compound is

    a) $[Ni(H_2O)_6]^{2+}$ b) CuCl   c) $K_3[Cu(CN)_4]$ d) $[Sc(H_2O)_6]^{3+}$

24. During electrolysis of molten copper chloride, the time required to produce 0.2 mole of chlorine gas using a current of 2 A is

    a) 32.66 min   **b) 321.66 min**   c) 378 min   d) 260 min

25. Smoke is a colloidal solution of

    a) Solid in gas   b) Gas in gas   c) Liquid in gas   d) Gas in liquid

26. Iso propyl benzene on oxidation in presence of air and dilute acid gives

    a) C_6H_5COOH b) $C_6H_5COCH_3$ c) $C_6H_5CO\ C_6H_5$ **d) C_6H_5OH**

27. But $-$ 2 $-$ ene on ozonolyis followed by subsequent cleavage with Zn and water gives

    a) ethanal   b) Propanal   c) Propanone   d) Methanal

28. Aniline + benzoyl chloride $\xrightarrow{NaOH}$ C_6H_5NH-OC-C_6H_5. This reaction is known as

    a) Friedal – craft's reaction   b) HVZ reaction

    c) Schotten – Baumann reaction   d) Cannizaro reaction

29. The pyrimidine bases present in DNA are

    a) Cytosine and Adenine   b) Cytosine and Guanine

    c) Cytosine and Thiamine   d) Cytosine and Uracil

30. Nylon is an example of

    a) Polyamide   b) Polythene   c) polyester   d) Polysaccharide

31. Find the odd one out

    a) Sphalerite   b) Galena   **c) Azurite**   d) Iron pyrite

32. Diborane, the number of electrons that accounts for banana bonds is

    a) six   b) two   **c) four**   d) three

33. The shape of ammonia molecule is

    a) tetrahedral   **b) pyramidal**   c) square planar   d) octahedral

34. The lanthanide contraction is responsible for the fact that

    a) Zr and Zn have the same oxidation state   **b) Zr and Hf have almost the same radius**

    c) Zr and Nb have similar oxidation state   d) Zr and Y have similar radius

35. Phthalo blue —a bright blue figement is a complex of

    a) Copper (I) ion   **b) Copper (II) ion**   c) Nickel (II) ion   d) Nickel (IV) ion

36. Which of the following is an anionic detergent?

    a) Sodium lauryl sulphate   b) Cetyltrimethyl ammonium bromide
    c) Glyceryl oleate   d) Sodium stearate

37. Which of the following polymer is stored in the liver and muscles of animals?

    a) Amylose   b) Cellulose   c) Amylopectin   **d) Glycogen**

38. Degree of dissociation is nearly equal to 1 for

    a) Strong acids and strong bases   b) Strong acids and weak bases
    c) Weak acids and strong bases   **d) Weak acids and weak bases**

39. The cathode in Leclanche cell is

    a) Zinc container   b) spongy lead
    c) graphite rod in contact with MnO_2   d) HgO mixed with graphite

40. Colloidal solution of ink is prepared by

    a) mechanical dispersion   b) electro dispersion

    c) ultrasonic dispersion   d) peptisation

41. The ultimate product obtained when glycerol reacts with $KHSO_4$ is

    a) formic acid   b) glycerol oxalate   c) allyl alcohol   **d) acrolein**

42. When chlorine is passed through acetic acid in presence of red phosphorous, it forms

    a) acetyl chloride   b) tri chloro acetaldehyde
    c) mono chloro acetic acid   d) methyl chloride

43. Nitration of nitrobenzene at 473 K, results in

    a) o-dinitro benzene   **b) 1,3,5-trinitro benzene**

    c) p-dinitro benzene   d) m-dinitro benzene

44. The vitamin used in the building of collagen is

    a) vitamin A   **b) vitamin C**   c) vitamin E   d) vitamin K

45. The monomer unit of natural rubber is

    a) cis isoprene   b) trans isoprene   c) orlon   d) capro lactam

46. Liebermann's nitroso reaction is used for testing _____.

    a) 1° amine   **b) 2° amine**   c) 3° amine   d) all the above

47. Henderson equation for a weak acid and its salt is

    a) pH = pKb + log (Salt) / (Acid)   **b) pH = pKa + log (Salt) / (Acid)**
    c) pH = pKa + log (Salt) / (Base)   d) pH = pKa + log (Acid) / (Salt)

48. A certain current liberated 0.504 gm of hydrogen in 2 hours. How many grams of copper can be liberated by the same current flowing for the same time in a copper sulphate solution

    a) 31.75   **b) 15.8**   c) 7.5   d) 63.5

49. Which among the following reactions is an example of auto catalysis?

   i) $CH_3COOC_2H_5 + H_2O \rightarrow CH_3COOH + C_2H_5OH$

   ii) $2H_2O_2 \rightarrow 2H_2O + O_2$

   iii) $2SO_2 + O_2 \rightarrow 2SO_3$

   iv) $2AsH_3 \rightarrow 2As + 3H_2$

   a) only (i)   b) (i) and (ii)   c) (i) and (iii)   **d) (i) and (iv)**

50. Ethylene glycol is dehydrated to 1,4 dioxane by

   a) $Conc.H_3PO_4$ **b) Conc.H_2SO_4**   c) anhy.$ZnCl_2$ d) heat at 773K

51. Which of the following compounds is oxidized to give ethyl methyl ketone?

   a) 2-propanol   b) 2-pentanone

   c) 1-butanol   **d) 2-butanol**

52. The basic character of amines is due to the

   a) tetrahedral structure   b) presence of nitrogen atom

   c) lone pair of electron on nitrogen atom   d) high electronegativity of nitrogen

53. If a person bleeds by his gingiva, so what would you suggest to eat to prevent the disease?

   a) vegetable oil   **b) citrus fruits**   c) cheese   d) milk

54. What are the raw materials required for the manufacture of terylene?

   a) ethylene glycol + terephthalic acid   b) phthalic anhydride + phenol

   c) adipic acid + hexamethylene diamine   d) phenol + methanol

55. An example of antifertility drug is

   a) novestrol   b) seldane   c) salvarsan   d) Chloramphenicol

56. $C_6H_5NH_2$ is treated with $NaNO_2$ / HCl it forms X. Identify X.

   a) C_6H_5Cl b) C_6H_5NHOH **c) $C_6H_5N_2Cl$**   d) C_6H_5OH

57. In the reduction of carbonyl compounds using $LiAlH_4$. It reduced,

   a) C=O bond only   b) C=C bond only   c) C=O bond and C= C bond   d) all of these

58. Which coordination complex is used to radioactive positioning treatment?

   a) Ca – EDTA   b) Cis – platin   c) [Ni (DMG)$_2$]   d) Carboxy peptidase

59. For a reaction $x + y + z \longrightarrow$ products, the rate law is given by rate k= $[x]^{3/2}$ $[y]^{1/2}$.

   What is the overall order of the reaction?

   a) O.5   b) 3   **c) 2**   d) 3/4

60. Potassium has a bcc structure with nearest neighbor distance 4.52 A^0 its atomic weight is 39.

   Its density will be,

   a) 915 kg m^{-3}   b) 2142 kg m^{-3} c) 452 kg m^{-3} d) 390 kg m^{-3}