CHM 112 PRACTICE QUESTIONS

1) The common feature of organic chemicals is that they contain---------- (a)fluorine (b)**carbon** (c)lithium (d)vinyl group

2) The ability of atoms to join together is termed---------- (a)**catenation** (b)cracking (c)hydrogenation (d)catalysis

3) Organic chemicals were thought to be found in only---------- (a)non-living things (b)semi-living things (c)**living things** (d)none of the above

4) Inorganic chemicals were thought to be found in---------- (a)living things (b)**non-livingthings** (c)all of the above (d)none of the above

5) Ethanoic acid is used in---------- (a)sugar (b)petrol (c)clothing (d)**vinegar**

6) Which of the following substance is contained in alcoholic drinks? (a)Ethanoic acid (b)glycine (c**)ethanol** (d)glucose

7) Which of the following is not a property of homologous series? (a)they have the same functional group (b**)they have similar physical properties** (c)they have similar chemical properties (d)they have the same general formula

8) Organic compounds are mainly---------- (a)electrovalent (b**)covalent** (c)dative (d)ionic

9) One of the following compounds is an exception to Baeyer's strain theory (a)**benzene** (b)methane (c)ethane (d)ethanol

10) "Rings that have bond angles different to the tetrahedral angle will suffer from strain, if the strain is too great the ring may break" who said this statement? (a)Friedrich Wohler (b**)A.Baeyer** (c)A.Kekule (d)Heisenberg

11) Organic compounds with the same molecular formula and functional group but a different arrangement of the atoms in space are called---------- (a)geometric isomers (b)functional group isomers (c)metamers (d)**chain isomers**

12) Isomerism which occurs owing to the lack of free rotation about double bonds is---------- (a)functional (b)chain (c)stereo (d)**geometric**

13)---------- seek out centres of positive charge (a**)nucleophiles** (b)electrophiles

(c)none of the above (d)A or B

14)---------- seek out centres of negative charge (a)nucleophiles (b)**electrophiles** (c)A or B (d) none of the above

15) What is the functional group in nitriles? (a)triple bond (b)double bond (c)OH group (d)**cyanide group**

16) What is the functional group in ketones? (a)cyanide group (b)triple bond (c)**CO group** (d)oxygen

17) What is the functional group in amides? (a)**$CONH_2$ group** (b)NH_2group (c)CO group (d)OH group

18) A $\times$B------- A^++ BX^-This reaction is bond breaking through-------- (a)homolysis (b)catalysis (c)**heterolysis** (d)none of the above

19) What is the functional group in Arene? (a)NH_2 group (b)**Benzene ring** (c)CO group (d)OH group

20) What is the name of this molecule $CH_3CHNH_2CH_2OH$? (a)1-aminopropan-1-ol (b)2-aminopropan-3-ol (c)**2-aminopropan-1-ol** (d)none of the above

21) Which of the following is an electrophile? (a)OH^-(b)H_20 (c)all of the above (d) **none ofthe above**

22) Which of the following is known as 'marsh gas'? (a)ethane (b)ethene (c)methanol (d)**methane**

23) The correct combustion equation for pentane is---------- (a)C_5H_{10} + $8O_2$_____ $5CO_2$ + $7H_2O$ (b)C_6H_{10} + $8O_2$_____ $2CO_2$ + $4H_2O$ (c)**C_5H_{12} + $8O_2$____ $5CO_2$+ $6H_2O$** (d)none of the above

24) What is the melting point of butane? (a**)-138°C** (b)138°C (c)-182°C (d)182°C

25) In the substitution reaction of methane, at the propagation stage, the equation is -------- (a)Cl_2____ $2Cl^{\cdot}$(b)**CH_4+ $Cl^{\cdot}$_____$CH_3^{\cdot}$ + HCl** (c)$CH_3^{\cdot}$ + $Cl^{\cdot}$_____ CH_3Cl (d)no answer

26) Decarboxylation of a salt of an organic acid by heating with soda lime yields (a**)alkane** (b)alkene (c)alkyne (d)alkanoic acid

27) RM_gX is the general formulae for a Grignard reagent, what does R and X represent? (a)metal and halogen (b)alkoxy and metal (c)alkoxy and halogen (d)**alkyl and halogen** (e)none of the above

28) Which of the following is an example of free radical reaction? (a)**substitution reaction** (b)elimination reaction (c)esterification (d)polymerisation

29) What is the boiling point of but-1-ene? (a)-18°C (b)-10°C (c)**-6°C** (d)-8°C

30) If you heat alcohol with concentrated sulphuric acid you get---------- (a)alkane (b)**alkene** (c)alkyne (d)alkanol

31) Bromine is---------colour and changes to----------when added to an alkene (a)**red-brown, colourless** (b)orange, yellow (c)colourless, orange (d)purple, colourless

32) Alkenes undergo---------- (a)condensation polymerisation (b)**addition polymerisation** (c)ionic polymerisation (d)atactic polymerisation

33) What is the monomer unit of Teflon? (a)vinyl chloride (b)styrene (c)ethene (d)**tetrafluoroethene**

34) Ethyne will polymerize at---------- to give---------- (a)38°C, polyethyne (b)400°C, styrene (c)**400°C, benzene** (d)48°C, polyethyne (e)480°C, benzene

35) Which of the following is an activating group in electrophilic substitution? (a)NO_2 (b)COOH (c)CHO (d)SO_3H (e)**none of the above**

36) Which of the following is a deactivating group? (a)NH_2 (b)**COOH** (c)CH_3 (d)OCH_3 (e)none of the above

37) The methyl group directs where? (a)ortho (b)meta (c)ortho meta (d)**ortho para**

38) Wurtz's synthesis is used to produce-------- (a)alkenes (b)alkynes (c)alkanoic acids (d)**alkanes** (e)alkanols

39) Benzene + Cl_2___?____benzoyl chloride + HCl. What is missing? (a)Cl_2 (b)Ni

(c)**$AlCl_3$**(d)H_2

40)---------- are a type of cyclic ethers (a)**epoxides** (b)cyclo ethers (c)epoxanes (d)amines

41) Epoxides are also known as---------- (a)alkanes (b)**oxiranes** (c)ethers (d)none of the above

42) Benzene__H_2, Ni____ ? (a)benzane (b)hexane (c)**cyclohexane** (d)heptane

43) Glycol is an old name for---------- (a)ethene-1,2-diol (b)**ethane-1,2-diol** (c)ethane-1,2ol (d)hexanol

44) Glycerol is an old name for----------(a)ethane-1,2-diol (b)hexanol (c)hex-2-ol (d)**propan-1,2,3-triol** (e)none of the above

45)---------- is the traditional way of making alcohol (a)Grignard reagent (b)hydration of alkenes (c)**fermentation** (d)none of the above

46) Vodka, brandy and whisky are---------- drinks (a)carbonated (b)**alcoholic** (c)sweetened (d)catenated

47)---------- are reduced to secondary alcohols (a)aldehydes (b)alkanoic acids (c)alkanols (d)**ketones**

48) Ethanal_____ propan-2-ol. What is the Grignard reagent and element necessary for conversion? (a)C_2H_5MgBr, H_2O (b)C_3H_7MgBr, H_2O (c)**CH_3MgBr, H_2O** (d)C_4H_9MgBr, H_2

49) 2-methylpropan-2-ol is an example of (a)primary alcohol (b)secondary alcohol (c)**tertiary alcohol** (d)all of the above

50) Tertiary alcohols are oxidised to---------- (a)aldehydes (b)ketones (c)alkanoic acids (d)**none of the above**

51) Polymerisation of ethanol yields----------(a)polyethanol (b)Teflon (c)**Bakelite** (d)polyacrylonitrile

52)----------has a characteristic smell which may be detected near rotting fruit (a)ethene (b)ethyne (c)**ethanal** (d)ethanol

53) The wacker process is used to produce-------- (a)**ethanal** (b)ethanol (c)ethanone (d)Ethanoic acid

54) The structural formular for benzaldehyde is---------- (a)C_6H_6Cl (b)C_6H_5OH (c)C_6H_5Ph (d)**C_6H_5CHO**

55)---------- is mainly manufactured from cumene (a)ethanal (b)propanal (c)**propanone** (d)propene (e)none of the above

56) What is the structural formular for cumene? (a)**$C_6H_5CH(CH_3)_2$**(b)C_2H_5OH (c)$C_6H_5ClCH(OH)_2$ (d)C_6H_5CHO

57)---------- is a reagent used in identifying aldehydes and ketones (a)$KMnO_4$ (b)Bromine water (c)$K_2Cr_2O_7$ (d)**2,4-dinitrophenylhydrazine**

58) The aldol condensation is a reaction that----------undergo (a)alkanones (b)**aldehydes** (c)alkanols (d)alkanoates

59) What will be made if butanone is reduced using $LiAlH_4$? (a)butanal (b)but-2-ene (c)**butan-2-ol** (d)butan-2-oic acid

60) Which of the following is a test for alkanals? (a)silver mirror test (b)iodoform test (c)orange precipitate with fehling's solution (d)**all of the above**

61)---------- is responsible for the acidity of carboxylic acids (a)presence of double bond (b)**presence of COOH group** (c)number of hydrogen (d)none of the above

62) $C_6H_5CH_2COOH$ is named---------- (a)phenylethanoic acid (b)benzoic amine (c)benzenamide (d)phenylpropanoic acid

63) In ---------- german chemist took ammonium cyanate and heated it. The product was ---------- (a)1826, ammonia (b)1829, urea (c)1828, ammonia (d)**1828, urea** (e)1827, cyanide

64) Nitrile synthesis is used to produce ---------- (a)alkanals (b)alkanones (c)**carboxylic acids** (d)esters

65) $LiAlH_4$ is called-------- (a)lithiumaluminiumtetrahydrido(iii) (b)aluminiumlithiumtetrahydroaluminate(iii) (c)lithiumtetrahydrogenoaluminate(iii) (d)**lithiumtetrahydridoaluminate(iii)**

66) Which of the following is a carboxylic derivative? (a)ethanol (b)**acid chlorides** (c)alkanes (d)benzaldehyde

67) $CH_3CONH_2 + OBr^- + 2OH^-$_____ $CH_3NH_2 + CO_3^{2-} + H_2O + Br^-$ This reaction is called (a)**Hofmann degradation** (b)Hoffmann degradation (c)Hoffmann oxidation (d)all of the above

68) Urea is a/an ---------- (a)amine (b)nitrile (c)**amide** d)carboxyl

69)---------- are responsible for the odour of foodstuffs (a)**esters** (b)amides (c)amines (d)ethers

70) Aspirin, one of the most remarkable successes of the pharmaceutical industry is----------(a)an ether (b)**an ester** (c)an epoxide (d)an amine

71) Williamson's synthesis is used to produce---------- (a)amines (b)alkanols (c)**ethers** (d)esters

72) A ---------- Physicist discovered that some substances have the ability to rotate the plane of polarised light. (a)German (b)Russian (c)**French** (d)Swedish

73)---------- in ---------- discovered that some substances have the ability to rotate the plane of polarised light (a)Friedrich Wohler, 1812 (b)A.Baeyer, 1813 (c)Jean Biot, 1813 (d)**Jean Biot, 1812** (e)A.Baeyer, 1811

74) Rotation of the plane of polarised light is measured with a ---------- (a)galvanometer (b)**polarimeter** (c)Wheatstone bridge (d)spectrophotometer

75) A racemic mixture consists of ---------- (a)**equal proportion of two enantiomers** (b)unequal proportion of two enantiomers (c)equal proportion of two diastereoisomers (d)unequal proportion of two diastereoisomers

76)---------- is the separation of enantiomers or diastereoisomers (a)configuration (b)rotation (c)**resolution** (d)divorce (e)segregation

77) What is the formular for measuring specific rotation at 20°C? (a)$[\alpha]_D^{40}$= length of tube(dm)/measured rotation (b)$[\alpha]_D^{20}$=length of tube(dm) /measured rotation × concentration(gcm^{-1}) (c)**$[\alpha]_D^{20}$= measured rotation/length of tube(dm) × concentration(gcm^{-1})** (d)$[\alpha]_D^{40}$= measured rotation/length of tube(dm)

78) When a polaroid is rotated to the right(clockwise direction), we say the chemical in the tube is---------- (a)laevorotatory (b)**dextrorotatory** (c)all of the above (d)none of the above

79)---------- was one of the first scientists to make a study of optical activity (a)Jean Biot (b)Mendel eev (c)Heisenberg (d)**Louis Pasteur**

80) In ---------- a scientist made a crucial observation when he was working on the salts of tartaric acid (a)1844 (b)1846 (c)**1848** (d)1850

81) The modern name for tartaric acid is---------- (a)1,2-dihydroxypentanedioic acid (b)**2,3-dihydroxybutanedioic acid** (c)1,2-dihydroxybutanedioic acid (d)1,2,3-trihydroxyhexanedioic acid

82)----------are mirror images of one another (a)enantiomers (b)optical isomers (c)**all of the above** (d)none of the above

83) The modern name for lactic acid is ---------- (a)5-hydroxypropanoic acid (b)1-hydroxybutanoic acid (c)2-hydroxybutanoic acid (d)**2-hydroxypropanoic acid**

84) The carbon atom at the centre of 4 different groups is called---------- (a)symmetric carbon (b)**asymmetric carbon** (c)master carbon (d)holding carbon

85) $H_2N\text{-}CH_2\text{-}COOH$ is called ---------- (a)glycerol (b)**glycine** (c)cumene (d)adepic acid

86) The Cahn, Ingold and Prelog naming system was invented in--------(a)**1956** (b)1960 (c)1964 (d)1962

87) In Cahn, Ingold and Prelog system, R stands for---------- (a)rectes (b)rectis (c)**rectus** (d)rector

88) The spontaneous change of a solution of α-glucose into β-glucose is termed---------- (a)spontaneity of glucose (b)**mutarotation of glucose** (c)resolution of glucose (d)racemicity of glucose

89) Trimethyl amine is a---------- amine (a)primary (b)secondary (c)**tertiary** (d)none of the above

90) Cocaine is---------- (a)an amide (b)**an amine** (c)a nitrile (d)a carboxylic acid

derivative

91) Nitrous acid test is used to test---------- (a)**amines** (b)amides (c)nitriles (d)carbonyl

92) Glucose is a --------- sugar (a)**reducing** (b)oxidizing (c)reducing-oxidizing (d)none of the above

93) Monosaccharides have the general formular (a)$CnH_{2n+2}O_n$ (b)$C_{n+2}H_{2n}O_n$ (c)**$C_nH_{2n}O_n$**(d)$C_nH_{2n}O_{n-1}$

94) Teflon is the polymer obtained from---------- (a)vinyl chloride (b)**tetrafluoroethene** (c)acrylonitrile (d)ethene

95) Naphthalene is---------- (a)an alkene (b)an alkenol (c)**an arene** (d)none of the above

96) Benzene readily undergoes---------- reaction(a)addition (b)**substitution** (c)condensation (d)none of the above

97) What is the name of the scientist that named benzene? (a)Louis Pasteur (b)Jean Biot (c)**August kekule** (d)Huckel

98) Esters are also known as---------- (a)aldehydes (b)alkanols (c)**alkanoates** (d)epoxides

99) Proteins are made up of---------- (a)amides (b)alkenes (c)**amino acids** (d)alcohol