DEPARTMENT OF INDUSTRIAL CHEMISTRY
FEDERAL UNIVERSITY OYE EKITI, EKITI STATE, NIGERIA
SECOND SEMESTER EXAMINATION 2014/2015

COURSE CODE/ TITLE: CHM 102- GENERAL CHEMISTRY II
TIME ALLOWED: 3 HOURS
INSTRUCTION: ANSWER ALL QUESTION IN SECTION [A] AND ANY ONE QUESTION IN SECTIONS B, C, D AND E.

SECTION A - OBJECTIVE

1. How many delocalised electrons does a molecule of benzene has?
   (a) 6 (b) 12 (c) 3 (d) 9 (e) none
2. When 3 hydrogen atoms on a benzene ring are replaced by a group of atoms, such a molecule of benzene is called
   (a) Benzene ring (b) ortho-, meta-, para-benzenes (c) Nomenclature of benzene (d) Benzene derivative (e) Ortho/Para-directors
3. How many Pi bond does a benzoic acid has?
   (a) 6 (b) 10 (c) 4 (d) 3 (e) 8
4. Benzaldehyde is an example of aldehyde compounds with _____ sigma electrons
   (a) 14 (b) 30 (c) 28 (d) 12 (e) 17
5. Beside peptide bond, what other bonds are commonly found in protein structures?
   (a) Ether bond (b) Poly peptide bond (c) Hydrogen bond (d) Electrovalent bond (e) Disulphides bond
6. _____ is responsible for the decrease in solubility of alcohol with increase in its molecular mass
   (a) Increase in hydrocarbon tail (b) Decrease in alkyl (c) Presence of hydroxyl group (d) Absence of heat energy (e) Steric hindrances
7. What is the relevance of the increasing molecular mass on the boiling point of alcohol
   (a) Increases its boiling point (b) Decreases its boiling point (c) Makes alcohol and its boiling point primary (d) Absorbs the boiling point of alcohol (e) a - d
8. On hydrolysis, alkyl halide gives _____
   (a) Alkanoic acid (b) Akyl (c) Ketone (d) Alkanol (e) Aldehyde
9. Which of the classes of alcohol is the most basic
   (a) Primary (b) Quaternary (c) Secondary (d) Tertiary (e) Alkanol
10. Which of these compounds is more soluble in water
    (a) Primary alcohol (b) Secondary alcohol _____(c) Tertiary alcohol (d) Isomeric alcohol (e) Phenol
11. _____ will convert phenol to Chlorobenzene

(e) a, b & c

[illegible]Cl (b) PCl_5 (c) CH_3CH_2Cl (d) a & b

12. [illegible]e carbohydrates classified as a hydrate of carbon?
(a) Because they contain a molecule of water (b) Because water can be drained out of starch (c) Because their structures contain hydrogen and oxygen in the same proportion as in water (d) Because cassava and potatoes are carbohydrates (e) None of the above

13. Oligosaccharoses are polysaccharoses
(a) True (b) False (c) No idea (d) Why the question? (e) a & C

14. How many carbon atoms are there in erythroses?
(a) 6 (b) 4 (c) 5 (d) 3 (e) 7

15. Another name for quartenary structure of proteins is_____
(a) Globulin (b) α-helix (c) Monomer (d) Oligomer (e) Polymer

16. The bond length in ethane is
101° (b) 105° (c)109° (d) 113° (e) 117°

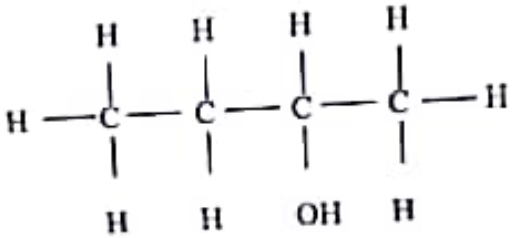
17. Beside peptide bend, what other covalent bonds are commonly found in peptides?
(A) Hydrogen bond (B) Ether bonds (C) Disulphide bonds (D) Hydrophobic bonds (E) B and D

18. All of the following statements concerning peptide bonds are true EXCEPT
(A) Their formation involves an alcohol and a carboxyl group
(B) They are the primary bonds found in proteins
(C) They have partial double bond character
(D) Their formation involves hydration reactions
(E) Their formation involves condensation reactions

19. In a neutral solution, most amino acids exist as:
(A) Positively-charged compounds (B) Zwitterions (C) Negatively charged compounds (D) Hydrophobic molecules (E)All of the above

20. Which of the following is involved in the conversion of glucose in sorbitol?
(A) Addition reaction (B) substitution reaction (C) Oxidation of the glucose (D) Reduction of the glucose (E) Reduction and oxidation of the glucose

21.



The above is an example of: (A) Primary alcohol (B) Secondary alcohol (C) Tertiary alcohol (D) hydroxyl acid (E) All of the above

22. Tertiary alcohols are oxidized with difficulty because:
(A) There is no hydrogen attached to the carbon with the hydroxyl group
(B) There is no hydrogen attached to the αcarbon

(C) Tertiary alcohol contain hydroxyl group with no polarization
They are relatively inert
(E) They contain only one OH group

23. Which of the following reagents should be used to convert $CH_3(CH_2)_3CH_2OH$ into $CH_3(CH_2)_2CHO$?
(A) $KmnO_4$ (B) $LiAlH_4$ (C) $NaBH_4$ (D) $-C_5H_6NCrO_3Cl$ (E) All of the above

24. A natural source of phenol is: (A) coal far (B) fermentation of plants (C) bones (D) vegetable oils (E) high temperation distillation

25. The product of fermentation of cassava is:
(A) Ketone (B) carboxylic acid (C) alcohol (D) aldehyde

26. Alcohol can be concentrated by: (A) distillation of the product (B) distillation of product with benzene (C) treatment of product with a dehydrating agent and filtration (D) by boiling the product (E) all of the above

27. An equilibrium mixture of ethanol and water boils at: (A) 90°C (B) 98°C (C) 78°C (D) 68°C (E) 78°C and 100°C

28. The boiling point of tertiary butanol is 65°C whereas that of normal butnol is 88°C, te difference in their b.p is due to: (A) nucleophilicity (B) resonance (C) hydrogen bonding (D) isomerism (E) B and C

29. Which of the following compounds will not give a positive iodoform reaction? (A) CH_3CHO (B) $CH_3CH_2COCH_2CH_3$ (C) CH_3COCH_3 (D) $CH_3CH\text{-}CH_2CH_3$ (E) All of the above

30. Which of these groups of compounds contain an organic compound which cannot form hydrogen bonds with each other/
(A) Carboxylic acids and alcohols (B) alcohols and disubtituted amides (C) None substituted and monosubtituted amides (D) A and B (E) None of these groups

31. The preparation of carboxylic acid derivatives involves:
(A)Nucleophilic addition reactions at the acyl carbon (B) Electrophilic substitution reaction at the ecylenbon (C) electrophilic addition reaction at the acyl carbon (D) Nucleophilic substitution at acyl carbon (E) condensation reactions

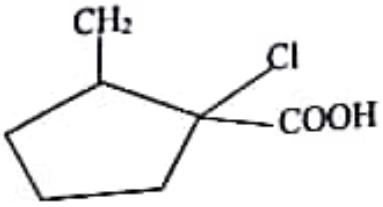
32. Which of these arrangement show the correct order of the relative reactivity of acyl compounds (A) Acyl chloride >acid anhydride>Ester>thiol ester (B) Acid chloride>thiol ester>acid anhydidre>Ester (C) Acid chloride >ester>peid anhydride>thiol ester (D) thiol ester>ester>acid anhydride>acid chloride (E) None of above

33. CH_3COOH has greater miscibility with water then $CH_3CH_3\text{-}CH_2\text{-}COOH$. The reason is due to a (A) hydrogen bonging (B) lower molecular weight (C) mutual incompatibility (D) ionization (E) dipole phenomenon

34. When phenol is spilled in the laboratory which reagent would be best to control it? (A) hydrochloric acid (B) ammonia (C) sodium carbonate (D) water (E) ethanol

35. The easiest way to recognize phenylamine in the laboratory is ? (A) strong fishy smell (B) solubility in acid (C) colour (D) solubility in water (E) phenolic odour

36. [redacted]ich general class of compounds does amine belong to? (A) oxidizing agent (B) dehydant [redacted]ucing agent (D) base (E) acid
37. Which of these molecules could be classified as a soap?(A) $CH_3(CH_2)_{12}CH_2COOH$ (B) CH_3COOH (C) C_3H_7COOH (D)$CH_3(CH_2)_{12}CH_2COO\ Na$
38. When an amine is reacted with a carboxylic acid the yellow product that is formed is called? (A) amine oxide (B) Cyano amine (C) amide (D) tertiary amine (E) solid ammonia
39. What is observed when ethanol react with acidified $KMnO_4$? (A) ethanol formed (B) ethanoic acid is formed (C) there is a colour change -------purple to colourless
40.



The name of the compound is
(a) 1-chloro-2-methyl cyclopentane carboxylic acid
(b) 2-chloro-methyl cyclopentane carboxylic acid
(c) 2-chloro-1-methyl cyclo pentane carboxylic acid
(d) 3-chloro-1-methyl cyclo pentane carboxylic acid
(e) 3-chloro-2-methyl cyclo pentane carboxylic acid

SECTION B

DEPARTMENT OF INDUSTRIAL CHEMISTRY
FACULTY OF SCIENCE
FEDERAL UNIVERSITY OYE-EKITI, EKITI STATE, NIGERIA
SECOND SEMESTER EXAMINATION 2015/2016
TIME: 1Hr : 45
TITLE: CHM 102-GENERAL CHEMISTRY II
INSTRUCTION: PLEASE ANSWER ALL QUESTIONS BY PUTTING A CIRCLE ROUND YOUR
KEY OF ANSWERS
NAME OF STUDENT _____ MAT NO _____ DATE _____
DEPARTMENT _____ SIGNATURE _____

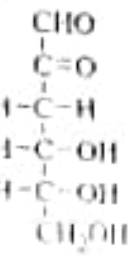
1. $CH_3CH{=}CH_2OH \xrightarrow{K_2Cr_2O_7/H_2SO_4}$ CH_3CH_2CHO, In this reaction (A) $CH_3CH_2CH_2OH$ has been reduced to CH_3CH_2CHO (B) $CH_3CH_2CH_2CH_2OH$ has been isomerised to CH_3CH_2CHO (C) $K_2Cr_2O_7$ is acting as a reducing agent (D) None of these is correct.
2. $2CH_3CHO \xrightarrow{OH^-} CH_3CH(OH)CH_2CHO$, This reaction illustrates (A) Aldol condensation (B) Mutarotation (C) Decarboxylation (D) Redox reaction
3. $C_6H_5CH{=}CH\text{-}CHO \xrightarrow{NaBH_4/H^+}$ The product of this reaction is (A) $C_6H_5CH_2CH_2CH_2OH$ (B) $C_6H_5CH{=}CHCH_2OH$ (C) $C_6H_5CH_2CH_2COOH$ (D) $C_6H_5CH_2CH_2COOH$
4. When alkene reacts with $KMnO_4$ the product formed is (A) Acid (B) Diol (C) Alkane (D) None of the product listed here
5. The product of the reaction between $CH_3COOCH_2CH_3$ and CH_3CH_2MgBr/H_2O is (A) Methyl formate (B) 3-Pentanol (C) 3-Methyl-3-pentanol (D) 4-Bromohexane
6. The reaction of ethanaldehyde, CH_3CHO and oxime NH_2OH produces (A) $CH_3CH{=}N\text{-}OH$ and H_2O (B) $CH_3CH_2NH_2$ (C) $CH_3CH{=}NH$ only (D) $CH_3CH{=}N\text{-}OH$ and NH_3
7. The oxidation of methanol ketone produces (A) Iodoform (B) Acid (C) No reaction (D) Iodoform and acid
8. The reaction of RCHO AND $NaCN/NaHSO_3$ gives (A) $RCH(CN)OH$ (B) RCN (C) $RCONH_2$ (D) None of these products is correct
9. This of the following is the product of the reaction of benzaldehyde and phenyl hydrazine.
10. ? + CH_3CH ? + Na/Ethanol $\longrightarrow CH_3CH_2CH_2OH$ The starting materials in this reaction are (A) $CH_3CH_2COOCH_3$ (B) CH_3CH_2OH (C) $CH_3COCH_2COCH_3$ (D) $HOCH_2CH_2CH_2CH_2OH$
11. Which of the following will not exhibit hydrogen bonding (A) Alcohols (B) Carboxylic acids (C) Alkanes (D) Amines.
12. The product of the reaction between RCOOH and $SOCl_2$ is (A) Acid chloride (B) Alcohol (C) Amine (D) Alcohol chloride
13. Which of the following is the most polar, (A) HCOOH (B) CH_3COOH (C) CH_3CH_2COOH (D) $CH_3CH_2CH_2CH_2COOH$.
14. Identify Y in the reaction $CH_3MgCl + Y \longrightarrow CH_3COOH$ (A) CO_2 (B) H_2O (C) CH_3OH (D) C_2H_5OH
15. Which of the following reagents should be used to convert $CH_3(CH_2)_3CH_2OH$ into $CH_3(CH_2)_3CHO$?
(A) $KMnO_4$ (B) $LiAlH_4$ (C) $NaBH_4$ (D) $C_5H_6NClO_3Cl$
16. The product of fermentation of millet powder is:
(A) Ketone (B) carboxylic acid (C) alcohol (D) aldehyde

17. The boiling point of tertiary butanol is 83°C whereas that of normal butanol is 88°C, the diff due to: (A) nucleophilicity (B) resonance (C) hydrogen bonding (D) isomerism

18. Which pair of reactants below will react to produce an acetal

(A) Alcohol + aldehydes (B) Ketone + ketone (C) aldehyde + alcohol (D) primary aldehyde + ketone

19.



This compound is NOT (A) A keto-hexose sugar (B) An oxidizing agent (C) Fructose (D) Ketose sugar

20. The compound CH_3-NH-CH_3 is (A) Primary amine (B) Secondary amine (C) Glycine (D) Lycine.

21. Which acid is present in vinegar (A) Acetic acid (B) Formic acid (C) Valeric acid (D) Nitric acid.

22. The isomerism exhibited between ethanol and dimethyl ether is (A) Position isomerism (B) Function isomerism (C) Chain isomerism (D) Stereo isomerism

23. How many likely isomers of 1,2 dichloro ethene is possible (A) 2 (B) 3 (C) 4 (D) None of the above

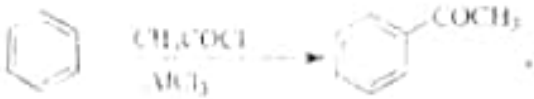
24. One of the following is not a simple reducing sugar (A) Glucose (B) Fructose (C) Galactose (D) Sucrose

25. The peptide linkage is found in (A) Proteins (B) Carbohydrates (C) Lipids (D) Oil

26. Ag^+ ⟶ $Ag_{(s)}$, this reaction is associated with (A) Benedict test for sugar (B) Reduction of acids (C) For determination of the presence of sugar (D) None of the reaction listed here

27. The Biuret test of proteins is associated with the presence of the (A) Peptide bonds (B) COOH group (C) group (D) Chloride

28.



The reaction is a typical (A) Friedel Craft hydrogenation (B) Friedel Craft acylation reaction (C) Friedel Craft alky (D) Friedel Craft oxidation

29. $CH_3CONHC_6H_5$ is (A) N-phenylethanamide (B) N-Benzylethanamide (C) O Phenyl ethanamide (D Phenylmethanamide

30. Which is out of place (A) Proteins (B) Ninhydrin (C) Peptide bond (D) Glycosidic bond

31. CH_2NH_2COOH ⟶ $CH_2NH_2CH_2OH$, in this reaction (A) Alanine has been oxidized to its carbo alcohol (B) Alanine has been reduced to its carboxylic acid derivative (C) Glycine has been oxidised to its alc (D) None of these is correct

32. The compound below is

(A) 2 methyl propanoic acid (B) β methyl propanoic acid (C) α-methyl butanoic acid (D) α methyl propanoic acid

33. Which of the following is tertiary amine

34. Which of the following has the highest boiling point (A) o-nitrophenol (B) Phenol (C) p-nitropheno

NH_2 benzene

NAME&MAT NO

actions of unsaturated organic molecules are/more of (A) Substitution (B) Addition (C) Rearrangeme

[illegible] conversion is an example of (A) 1,2-Shift (B) Elimination (C) Addition (D) Non

[illegible]

$CH_3COCH_2CH_3$ + CH_3CH_2MgBr/H_2O ⟶

[illegible]uct of this reaction is (A) 3-Meyhyl-3-pentanol (B) Ethylhexanoat(C) 3-Pentanol (D) Dimethyloutanol

38. [illegible]t is the IUPAC name of $CH_3CH_2CH(OH)CH(Br)CH_3$ (A) 2-Bromo-3-pentanol (B) 1-Bromo-3-pentanol (C) [illegible]entanol bromide (D) None of these is correct

39. $CH_3CH_2CH_2CONH_2$ ⟶ KOH/Br The product formed in the reaction above is (A) $CH_3CH_2CH_2NH$ (B) $CH_3CH_2CH_2CH_2CH_2NH_2$ (C) $CH_3CH_2CH_2CH_2Br$ (D) None of these is correct

40. Basic hydrolysis of fat or oil is known as (A) Saponification (B) Esterification of fat or oil (C) Reduction of fat or oil (D) Oxidation of fat or oil

41. If the molecular mass of fruit sugar is 180.2g/mol and the empirical formula is CH_2O, what is the molecular formula (A) $C_{12}H_{22}O_{11}$ (B) $C_6H_{12}O_6$ (C) $C_5H_{22}O_{11}$ (D) None of these is correct

42. The most important spectroscopic tool used in the identification of functional groups in an organic compound (A) FTIR (B) UV/V (C) MS (D) NMR

43. Glucose is (A) Aldo sugar (B) Hexose sugar (C) Keto sugar (D) A and B is correct

44. If a motorist is arrested for drunkenness, and requested to breath into a tester containing acidified $KMnO_4$, the colour change is likely to be from (A) Purple to colourless (B) Purple to red (C) Colourless to purple (D) None these is correct

45. The enzyme responsible for fermentation of bread in yeast is (A) Zylose (B) Ketose (C) Zymase (D) Maltase

46. Carbohydrate loading is the process where by (A) carbohydrate is been stored in plants (B)the body increase storage capacity of intramuscular glycogen stores (C) the carbohydrate stored in the roots of plants reaches the maximum capacity (D) carbohydrate is stored as glucose in plants and animals

47. The product of fermentation of maize is: (A) Ketone (B) carboxylic acid (C) alcohol (D) aldehyde

48. Glycogen is a branched biopolymer consisting of linear chains of ---------- residues (A) glucose (B) maltose (C) fructose (D) sucrose

49. Cellulose has the following properties except that it is (A) a white solid (B) insoluble in water (C) insoluble in ordinary organic solvents (D) easily hydrolysed

50. The enzyme cellulase that aid the hydrolysis of cellulose is found in (A) Ants (B) termites (C) spiders (D) man

51. Cellulose can be used for the production of the following except (A) cardboard (B) cellophane (C) cello-tape (D) rayon

52. The following terms can be used to describe cellulose except (A) polymer (B) biomass (C) biopolymer (D) bioenzyme

53. The following foods will turn blue black with ioden except (A) Gari (B) Guinea corn (C) Ground nut (D) Guguru

54. Which of the following statement is untrue (A) Cane sugar is sucrose (B) Blood sugar is glucose (C)Fruit sugar is fructose (D) Ground water sugar is glucose

55. Starch can be any of the following except (A) Amylum (B) Amylose (C) Amylupectin (D) Pectin

56. The following are reducing sugars except (A) Glucose (B) Sucrose (C) Maltose (D) Lactose

57. A positive test to Benedict's reagent is indicated by colour change from (A) blue to brick - red (B) brick-red to blue (C) brick-red to brown (D) brown to blue

58. The main form in which carbohydrates are transported in plants is (A) Glucose (B) Sucrose (C) Maltose (D) Lactose

...e following sugars are disaccharides except (A) Glucose (B) Sucrose (C) Lactose (D) Fructose

... The principle of Benedict's test is that when reducing sugars are heated in the presence of alkali, they are converted to powerful reducing compounds known as ....(ii)... which reduce the ... (iii) ... present in Benedict's reagent to.....(iv)..... which get precipitated. What are the missing words labelled (i-iv)?

A)(i) an alkali, (ii) enediols (iii) cupric ions (Cu^{2+}) (iv) cuprous ions (Cu^{+}) (B) (i) an acid (ii) ethylene (iii) ... (Cu^{2+}) (iv) cuprous ions (Cu^{+}) (C) (i) an alkali, (ii) ethylene (iii) cupric ions (Cu^{2+}) (iv) cuprous ions (Cu^{+}) (D) (i) an ... (ii) enediols (iii) cupric ions (Cu^{+}) (iv) cuprous ions (Cu^{+2})

1. The following are isomers of D-glucose except (A)D-Sorbitol (B) L-glucose (C) D-galactose (D) D- fructose

2. The test for reducing sugar with benedict solution is an example of (A) Addition reaction (B) Oxidation reaction (C) Condensation reaction (D) Dehydration

3. Advantages of polyols like sorbitol include the following except that they ..... (A) are used in mouthwash and toothpaste (B) are used in a humectant and thickener in cosmetics (C)increases blood glucose to a lesser extent than sucrose (D) causeslow blood volume

4. The following are polysaccharides except ..... (A) Cellulose (B) Chitin (C) Gluten (D) Glycogen

5. $C_2H_5CH_2OH$ is (A) A secondary alcohol (B) Reducible to an aldehyde (C) Oxidizable by $KMnO_4$ (D) None of these statements is correct

6. CH_3NH_2 (A) Is a primary amine (C) Is a secondary amine (C) Is tertiary amine (D) None of this is correct.

7. $CH_3CH_2OH + PCl_5 \longrightarrow ? + ? + ?$, the products of the reaction are (A) CH3Cl, $POCl_3$, HCl (B) $CH_3CH_2CH_2Cl$, $POCl_4$, HCl, (C) CH_3CH_2Cl, $POCl_3$, HCl (D) CH_3CH_2Cl, $POCl_3$, HCl

8. The order of time it takes cloudiness to develop in Lucas test for primary, secondary and tertiary alcohol is (A) 3>2>1, (B) 1>2>3 (C) 1>3>2 (D) 2>1>3

9. In the reaction $CH_3CH_2CH + HCl \xrightarrow{ZnCl/\ Reflux} CH_3CH_2OCl + H_2O$, (A)The product is Chloromethane (B) The product is secondary alcohol (C) Alkoxy-hydrogen fusion is involved (D) None of these statements is correct.

10. $CO + 2H_2 \xrightarrow{Cr_2O_3/ZnO} ?$, The major product of this reaction is (A) CH_3OH (B) C_2H_5OH (C) CH_3CHO (D) CH_3COOH

11. For the reaction between $CH_3CHO + CH_3MgBr$ followed by hydrolysis of the addition product yields (A) $CH_3CH_2CH_2OH$ (B) $(CH_3)_2CHOH$ (C) $CH_3OH + CH_3CH_2OH$ (D) None of the products is correct

12. The major reaction product of benzene sulphonic acid and $KOH/350^0C$ is (A) Benzoic acid (B) Phenol (C) Sulphonic acid and Benzene (D) None of this product is correct.

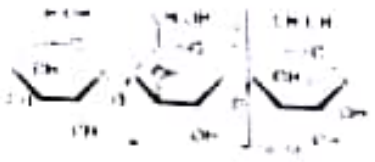
13. Arrange the following compounds in order of increasing acidity, $C6H5OH$, $CH3COOH$, $CH3CH2OH$, HCl, (A) CH_3CH_2OH, C_6H_5OH, CH_3COOH, HCl (B) HCl, CH_3COOH, CH_3CH_2OH, C_6H_5OH (C) C_2H_5OH,HCl,CH_3COOH, CH_3CH_2OH, (D) All have equal strength except CH_3CH_2OH

14. Hydrolysis of $CH_3CH_2CH_2COOCH_3$ produces (A) Propanoic acid and ethanol (B) Butanoic acid and methanol (C) Butanoic acid and ethanol (D) Butanol and methanoic acid

15.

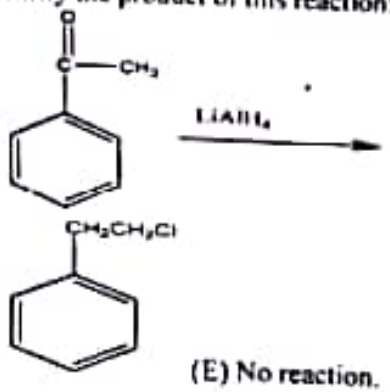
Which of the following is likely to effect the conversion? (A) $NaBH_4$ (B) Conc HNO_3 (C) Dil H2SO4 (D) None of the above

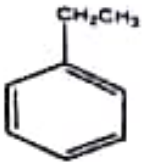
1. Compound 'A' undergoes formation of cynnohydrins which on hydrolysis gives lactic acid $CH_3CHOHCOOH$. Therefore, Compound 'A' is..... (A) Formaldehyde (B) Acetaldehyde (C) Benzaldehyde (D) Acetone (E) Acetophenone.
2. An organic compound 'X' is oxidised by using acidified $K_2Cr_2O_7$. The product obtained reacts with phenyl hydrazine but not answer silver mirror test. The possible structure of X is ------- (A) $(CH_3)_2CHOH$ (B) CH_3CHO (C) CH_3CH_2OH (D) CH_3COCH_3 (E) CH_3COCl
3. The following are true about the structure below except one.



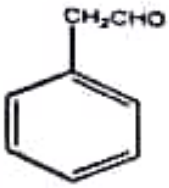
(A) It is an amylose molecule (B) It is a disaccharide (C) The monomer is glucose (D) It can be hydrolyzed to glucose (E) It is a starch molecule

4. Identify the product of this reaction:



(A) 

(B) 

(C) 

(D)

(E) No reaction.

5. Which of the following is a method of preparing ketones? ------- (A) Oxidation of secondary alcohols (B) Oxidation of primary alcohols (C) Reduction of aldehydes (D) Reduction of haloalkanes (E) None of the above

6 The following terms can be used to describe cellulose except
(A) Polymer (B) Biomass (C) Biopolymer (D) Bioenzyme (E) Polysaccharide

7 The following foods will turn blue black with iodine except
(A) Gari (B) Guinea corn (C) Ground nut (D) Guguru (E) Pop corn

8 Starch is also called the following except

(A) Amylum (B) Amylose (C) Amylopectin (D) Pectin (E) Polymer

9 The following are reducing sugars except

(A) Glucose (B) Sucrose (C) Maltose (D) Lactose (E) Fructose

10 A positive test to Benedict's reagent is indicated by colour change from

(A) Blue to brick –red (B) Brick-red to blue (C) Brick-red to brown (D) Brown to blue (E) Blue to black

11. The major component of proteins are all of the following except (A) Carbon (B) Oxygen (C) Nitrogen (D) Flourine (E) Hydrogen

12. CH_3-CH_2-$CH_2OH + KMnO_4 \xrightarrow{acid}$

(A) CH_3-CH_2-CH_3 (B) CH_3-CH_2-CHO (C) CH_3-CH-CH_2 (D) CH_3-CH_2-CH_3 (E) C and D

13. Organic compound can be purified with all of the following except (A) Centrifugation (B) Evaporation (C) Fractionation (D) Degradation (E) Electrolysis

14. Which of the following does not cause protein denaturation (A) Heat (B) Centrifugation (C) High pressure (D) Ionizing radiation (E) Chemicals.

15. Basic amino acids are all except (A) Lysine (B) Serine (C) Arginine (D) Histidine (E) None of the above

16. A natural source of phenol is: (A) coal tar (B) fermentation of plants (C) bones (D) vegetable oils (E) high temperature distillation

17. Phenol is regarded as an acid because (A) it is volatile (B) it easily releases a proton due to resonance (C) it is insoluble in water (D) it is corrosive to the skin (E) of cyclisation

18. The structure of phenol can be drawn in these two forms:

This phenomenon is called: (A) dehydration (B) deprotonation (C) tautomerism (D) reduction (E) isomerism

19. The product of fermentation of cassava is:

(A) Ketone (B) carboxylic acid (C) alcohol (D) aldehyde (E) amine

20. Alcohol can be concentrated by: (A) distillation of the product (B) distillation of product with benzene (C) treatment of product with a dehydrating agent and filtration (D) by boiling the product (E) all of the above

21. The product of decarboxylation of ethanoic acid

(A) Methane (B) Ethane (C) Propane (D) Carbon (E) CO

22. The functional group for alcohol and aldehyde, respectively are:

(A) RCHO,RCOR (B) ROH and RCOOR (C) ROH, RHO (D) RCHO and ROH (E) None of A-D is correct.

23. Clemmensen reduction of a ketone is carried out in the presence of which of the following?------- (A) H_2 and Pt as catalyst (B) Glycol with KOH (C) Zn-Hg with HCl (D) $LiAlH_4$ (E) finely divided Ni.

24. Organic Chemistry is the study of (A) some carbon compounds (B) All carbon compounds (C) Hydrocarbons (D) Non Hydrocarbons (E) All of the above

25. Which of the following reagents should be used to convert $CH(CH_2)_5CH_2OH$ into $CH_3(CH_2)_5CHO$?

(A) –KMnO4 (B) $LiAlH_4$ (C) $NaBH_4$ (D) $-C_5H_6NCrO_3Cl$ (E) All of the above

26. Saponification reaction is best described as (A) Condensation reaction (B) Acid promoted hydrolysis reaction (C) Base promoted hydrolysis reaction (D) Soap making reaction (E) Neutralization reaction involving an acid and a base

27. Which of the following is a primary amine? (A) 1,3 pentane diamine (B) N-ethyl, N Methylamine (C) Triethylamine (D) N,N, 3,5 trimethyl aniline (E) N-methyl pheyl amine

28. $(CH_3CO)_2O$ is

(A) An ether
(B) An ether
(C) An anhydride
(D) An amide
(E) Dicarboxylic acid

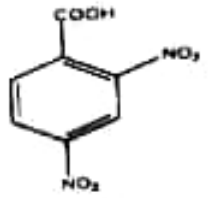
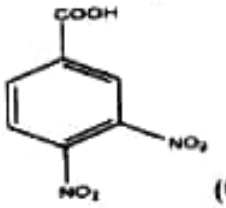
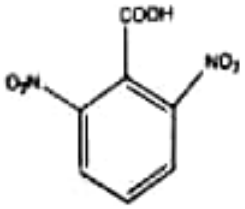
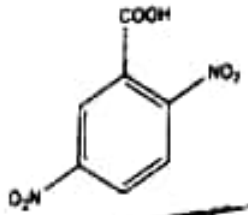
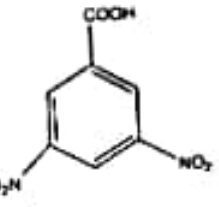
29. $CH_3CH_2CH_2C(CH_3)_2CH_2OH$ is

(A) 2,2-dimethyl-1-butanol
(B) 2-methyl-1-butan-1-ol
(C) 2,2-dimethyl-2-butanol
(D) 2,2-dimethyl-1-pentanol
(E) 4,4-dimethyl-1-butanol

30. The gas produced when sodium metal is dropped in ethanol is

(A) H_2 (B) O_2 (C) N_2 (D) CO_2 (E) None of A-D is correct

31. The correct structure of 2,4-Dinitrobenzoic acid is------

(A) 
(B) 
(C) 
(D) 
(E) 

32. Identify the most acidic compound from the following options:
(A) $ClCH_2COOH$ (B) $Cl_2CHCOOH$ (C) CH_3COOH (D) C_2H_5COOH (E) C_3H_7COOH

33. Give the products of the following reaction: $CH_3COOH + CH_3OH \xrightleftharpoons{H^+} ?$
(A) $CH_3COOCH_3 + H_2O$ (B) $CH_3COCH_3 + H_2O$ (C) $CH_3CH_2CHO + H_2O$
(D) $CH_3CH_2CH_3 + H_2O$ (E) $CH_3CH_2CH_2OH + H_2O$

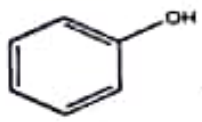
34. The final product of aldo condensation of two molecules of aldehydes will be---------(A) a β-hydroxyaldehyde (B) An α,β-unsaturated aldehyde (C) An α-hydroxyaldehyde (D) A β,β-unsaturated aldehyde (E) A β-hydroxy acid

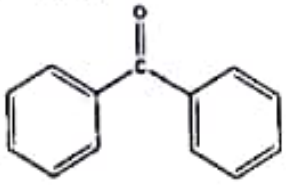
35. Ketones are less susceptible to nucleophilic attack than aldehydes because-------(A) Ketones are less stable than aldehydes (B) Aldehydes are more stable than ketones (C) the steric hindrance of the alkyl group of ketones may affect their reactivity (D) Ketones are more reactive (E) None of the above.

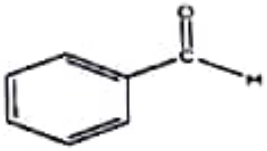
36. The carbonyl compounds that can be oxidised easily to form carboxylic acid are---------(A) ketones (B) Aldehydes (C) Haloalkanes (D) Esters (E) Alkanes

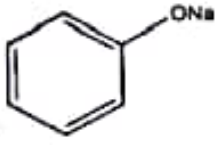
37. When an amide reacts with bromine in the presence of potassium hydroxide the products? (A) Acetamide (B) Primary amine (C) Nitrile (D) Nitro amine (E) Propanol amine

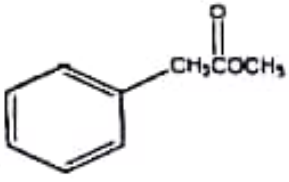
38. Which general class of compounds does amine belong? (A) Oxidizing agent (B) Dehydrant (C) Reducing agent (D) Base (E) Acid
39. When an amine is reacted with a carboxylic acid then yellow product that is formed is called? (A) amine oxide (B) Cyano amine (C) Amide (D) Tertiary amine (E) Solid ammonia
40. Grignard reagent when reacted with methanal will yield (A) Ethanol (B) Secondary alcohols (C) Tertiary alcohols (D) Propanol (E) Primary alcohol
41. The enzyme responsible for fermentation of bread in yeast is
(A) Zylose (B) Ketose (C) Zymase (D) Yeast (E) Yeastose
42. Glycogen is a branched biopolymer consisting of linear chains of ---------- residues
(A) Glucose (B) Maltose (C) Fructose (D) Sucrose (E) Galactose
43. Cellulose has the following properties except that it is
(A) A white solid (B) Insoluble in water (C) Insoluble in ordinary organic solvents (D) Easily hydrolysed (E) A carbohydrate
44. The enzyme cellulose that aid the hydrolysis of cellulose is found in
(A) Ants (B) Termites (C) Spiders (D) Man (E) Pig
45. Cellulose can be used for the production of the following:
(A) Cardboard (B) Cellophane (C) Cello-tape (D) Rayon (E) Polythene
46. The main form in which carbohydrates are transported in plants is
(A) Glucose (B) Sucrose (C) Maltose (D) Lactose (E) Galactose
47. The following sugars are disaccharides except:
(A) Glucose (B) Sucrose (C) Maltose (D) Lactose (E) Cellulobiose
48. The following are isomers of D-glucose except:
(A) D-Sorbitol (B) L-glucose (C) D-galactose (D) D-fructose (E) β-D-Glucopyranose
49. The product of the following reaction is:
$C_{12}H_{22}O_{11}$ + heat →
(A) Carbone (B) Water (C) Carbon and water (D) C_2H_6 (E) C_2H_4
50. The product of fermentation of maize is:
(A) Ketone (B) Carboxylic acid (C) Alcohol (D) Aldehyde (E) Starch
51 Identify the compound that will produce CO_2 from sodium bicarbonate

(A) 

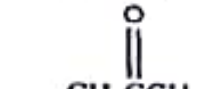
(B) 

(C) 

(D) 

(E) 

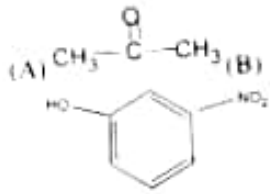
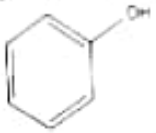
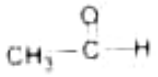
52. Which of these has the highest boiling point?

(A) 

(B) CH_3-CH_2-CH_2-OH (C) CH_3-CH_2-CHO (D) CH_3-C-Cl (E) 

53. CH_3COOH has greater miscibility with water than $CH_3CH_2CH_2COOH$. The reason is due to a (A) hydrogen bonding (B) lower molecular weight (C) mutual incompatibility (D) ion

54. Which one of the following compounds has a stronger acidity than water?

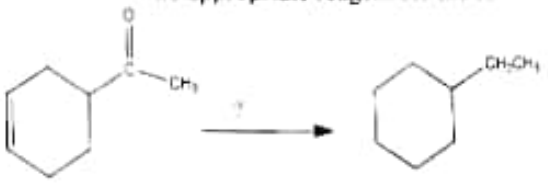
(A)  (B)  (C) CH_3CH_2OH (D)  (E)

55. The easiest way to recognize phenylamine in the laboratory is? (A) strong fishy smell (B) solubility in acid (C) colour (D) solubility in water (E) phenolic odour

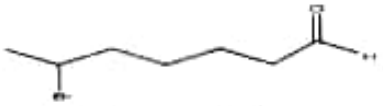
56. Test for the presence of proteins in a food are the following except (A) Biuret test (B) Millons test (C) Trillions test (D) Nitric acid test (E) None of the above

57. Reduction of aldehydes and ketones into hydrocarbon using hydrazine and a base is called (A) Cope reduction (B) Dow reduction (C) Wolff-Kishner reduction (D) Clemmensen reduction (E) Wurtz reaction

58. What is the appropriate reagent for the following transformation?



(A) $NaBH_4$ (B) $LiAlH_4$ (C) H_2, Ni (D) Zn(Hg), HCl (E) NH_2NH_2, NaOH

59. The correct IUPAC name for the following compound:  is-------- (A) 2-Bromo heptanal (B) 6-Bromo heptanone (C) 2-Bromo heptanone (D) 6-Bromo heptanal (E) 2-Bromo hexanal

60. Identify the product of this reaction: 

(A) CH_3CCH_3 (B) $CH_3CH_2CH_3$ (C) CH_3CH_2CHO (D) $CH_3CH_2CH_2Cl$ (E) No reaction.