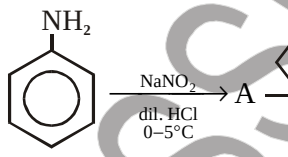
Chemistry

VOLUME - 6

Organic Chemistry

Quantum Success Mantraa: SCQ-NCERT Based

Choose the appropriate answer:

1. Maximum basic in gas phase is :
   (1) NH_3 (2) $CH_3CH_2NH_2$
   (3) $(CH_3CH_2)_2NH$ (4) $(CH_3CH_2)_3N$
2. Alkyl iodide reacts with NaCN to give alkyl cyanide and small amount of alkyl isocyanide. Formation of these two products is due to the
   (1) Ionic character of NaCN
   (2) Nucleophilic character of cyanide ion
   (3) Ambident character of cyanide ion
   (4) Electrophilic character of cyanide ion
3. In the given reaction
   $C_6H_5CH_2-COOH \xrightarrow[(ii)\ P_2O_5]{(i)\ NH_3/\Delta}$ [X]. [X] will be:
   (1) $C_6H_5-CH_2COONH_4$ (2) $C_6H_5CH_2CONH_2$
   (3) $C_6H_5-CH_2-CN$ (4) C_6H_5CN
4. In the given reaction, the major product (X) is
   $C_6H_5-CH_2-Br + AgCN \rightarrow$ [X]. [X] will be:
   (1) $C_6H_5-CH_2CN$ (2) $C_6H_5-CH_2NC$
   (3) $C_6H_5CH_2CONH_2$ (4) $C_6H_5CONH_2$
5. Carbylamine reaction is given by
   (1) Aliphatic primary amine
   (2) Aromatic primary amine
   (3) Unsaturated primary amine
   (4) All of these
6. Best method of preparing 1° amines from alkyl halide is by :
   (1) Hofmann-bromamide reaction
   (2) reaction with NH_3
   (3) Gabriel phthalimide reaction
   (4) Sandmeyer reaction
7. Partial reduction of cyanide by $SnCl_2$ followed by hydrolysis is called
   (1) Stephen's reduction
   (2) Rosenmunds reduction
   (3) Wolff Kishner Reduction
   (4) Clemmensen reduction
8. 
   B. B will be
   (1) Yellow dye (2) Green dye
   (3) Orange colour dye (4) Red dye
9. Isocyanides are hydrolysed in the presence of
   (1) Acid only (2) Base only
   (3) Acid as well as base (4) $NaNH_2/NH_3(l)$
10. Ethyl cyanide (A) can be converted to ethyl amine (B) by :
    (1) $A \xrightarrow{Sn/HCl} B$
    (2) $A \xrightarrow{H_3O^+} \xrightarrow[\Delta]{NH_3} \xrightarrow[\Delta]{KBrO} B$
    (3) $A \xrightarrow{LiAlH_4} B$
    (4) (1), (3) corect
11. Acetaldoxime reacts with P_2O_5 to give
    (1) Methyl cyanide (2) Methyl cyanate
    (3) Ethyl cyanide (4) Acetamide
12. In the reaction sequence
    $[X] \xrightarrow[\Delta]{CHCl_3/alc.\ KOH} [Y] \xrightarrow{H_2/Ni/\Delta} C_6H_5-NH-CH_3$
    [X] is
    (1) CH_3-NH_2 (2) $C_6H_5-NH_2$
    (3) CH_3-NO_2 (4) $C_6H_5-NO_2$
13. In the given reaction
    $R-X + [X] \xrightarrow{C_2H_5OH/\Delta} R-N(=O)-O^{\ominus}$. [X] will be:
    (1) $NaNO_2$ (2) KNO_2
    (3) $AgNO_2$ (4) All of these
14. Which one of the following compounds will show nitro-aci tautomerism ?
    (1) $C_6H_5-N(=O)-O$ (2) $CH_3-CH_2-N(=O)-O$
    (3) $CH_3-CH_2-O-N=O$ (4) $C_6H_5-O-N=O$
15. Which of the following is Hofmann mustard oil reaction?

(1) Reaction of primary amine with $CHCl_3$
(2) Reaction of primary amine with $CHCl_3 + KOH$
(3) Reaction of primary amine with $CS_2 + HgCl_2$
(4) Reaction of aromatic amine with iodoform

16. Which one of the following nitroalkanes will give nitrolic acid with $NaNO_2$/Conc. H_2SO_4?

(1) $CH_3-\underset{\underset{CH_3}{|}}{CH}-NO_2$ (2) $C_2H_5-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}}-NO_2$

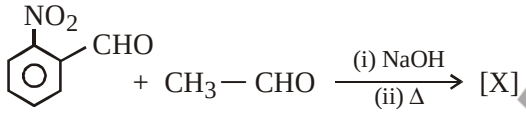
(3) $CH_3-\underset{\underset{CH_3}{|}}{CH}-CH_2-NO_2$ (4) None of these

17. In the reaction

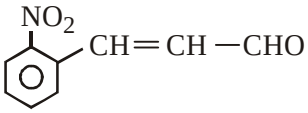
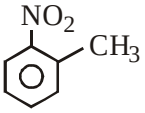
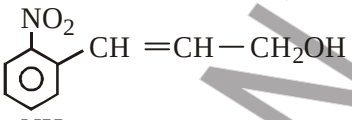
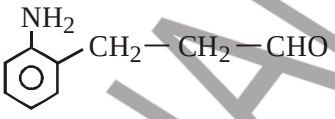
$CH_3-CH_2-NO_2 \xrightarrow{Zn/NH_4Cl} [X]$. [X] will be:

(1) $CH_3–CH_2–NHOH$ (2) $CH_3–CH_2–NO$
(3) $CH_3–CH_2–NH_2$ (4) $CH_3–CH_2–OH$

18. In the given reaction



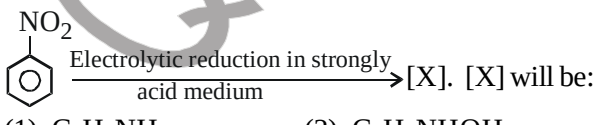
[X] will be:

(1) 
(2) 
(3) 
(4) 

19. Nitrobenzene can be reduced into

(1) C_6H_5NO (2) $C_6H_5–N = N–C_6H_5$
(3) C_6H_5NHOH (4) All of these

20. In the given reaction



(1) $C_6H_5NH_2$ (2) C_6H_5NHOH
(3) *p*-Amino phenol (4) Hydrazobenzene

21. Which is the best method of preparing 2° amine?

(1) $CH_3Cl + NH_3 \longrightarrow$

(2) $CH_3Cl \xrightarrow{KCN} \xrightarrow{Sn/HCl}$

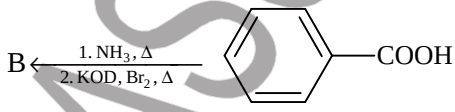
(3) $CH_3Cl \xrightarrow{AgCN} \xrightarrow{LiAlH_4}$

(4) $CH_3NH_2 \xrightarrow[\Delta]{CHCl_3/KOH} \xrightarrow{Sn/HCl}$

22. In the given reaction

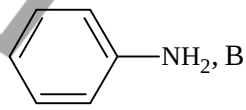
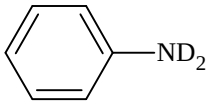
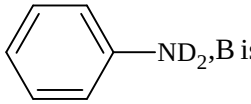
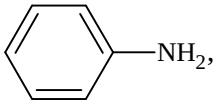
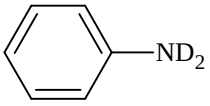
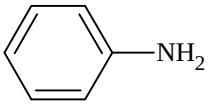
$C_6H_5-Cl \xrightarrow[Pressure]{NH_3/Cu_2O/\Delta} [X]$. [X] will be:

(1) $C_6H_5–NH_2$ (2) $C_6H_5 – NH – CH_3$
(3) $C_6H_5-N(CH_3)_2$ (4) $C_6H_5\overset{\oplus}{N}(CH_3)_3\overset{\ominus}{Cl}$

23. 

$\xrightarrow[2.\ KOH,\ Br_2,\ \Delta]{1.\ ND_3,\ \Delta}$ A;

What are A and B?

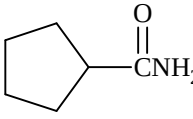
(1) A is  , B is 
(2) A is  , B is 
(3) both 
(4) both 

24. Reductive amination of ketones with NH_3 followed by treatment with Ni/H_2, gives

(1) Primary amine (2) Secondary amine
(3) Tertiary amine (4) Ketimine

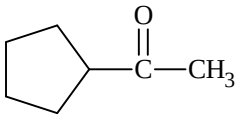
25. In the Hoffmann-Bromamide rearrangement intermediate compounds are

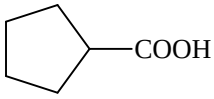
(1) R–CONHBr (2) $\left[R-\overset{\overset{O}{||}}{C}-\overset{\ominus}{N}-Br\right]Na^{\oplus}$
(3) R – N = C = O (4) All of these

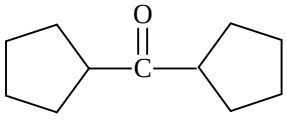
26. 

$\xrightarrow{P_4O_{10}}$ A $\xrightarrow[(ii)\ H_3O^+]{(i)\ CH_3MgBr}$ B

$\xrightarrow[(-\text{yellow ppt.})]{Ca(OH)_2,\ I_2}$ C $\xrightarrow{\Delta}$ D, D is :

(1) 

(2) 

(3) 

(4) 

27. In Gabriel synthesis, product is always
(1) Aliphatic primary amine
(2) Aliphatic secondary amine
(3) Aromatic primary amine
(4) Aromatic secondary amine

28. $RCH_2NO_2 \xrightarrow{LiAlH_4} A \xrightarrow{HNO_2} B \xrightarrow{Na/C_2H_5OH} C \xrightarrow{R^1Cl} D$. D will be
(1) $R-\underset{\displaystyle R^1}{\underset{|}{NH}}$ (2) $R-NR_2^1$
(3) RCH_2OR^1 (4) $RCOOR^1$

29. Biuret obtained on heating urea at about 400 K is :
(1) $NH_2CNHCNH_2$ (2) NH_2CCNH_2
(3) NH_2COH (4) NH_2CONH_4

30. Barbituric acid is obtained when urea is heated with:
(1) malonic ester (2) acetoacetic ester
(3) oxalic acid (4) succinic acid

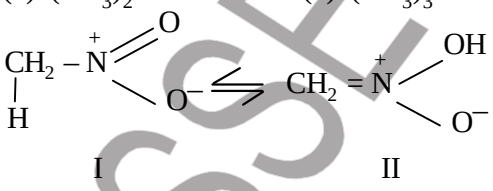
31. Secondary amines on oxidation with Caro's acid gives:
(1) dialkyl hydroxylamine
(2) tetra-alkyl hydrazine
(3) ketones
(4) amine oxide

32. Among the following which will react with acetone to give a product, containing > C = N ?
(1) Aniline (2) Trimethylamine
(3) Phenyl hydrazine (4) Both (1) and (3)

33. Nitrosoamine test is given by
(1) Primary amines
(2) Aromatic secondary amines
(3) Aliphatic as well as aromatic secondary amines
(4) Quaternary ammonium halides

34. Primary, secondary and tertiary amine can be distinguished chemically be
(1) CO_2 (2) CS_2
(3) SO_2 (4) All of these

35. The conjugate base of $[(CH_3)_3NH]^+$ is :
(1) $(CH_3)_3N$ (2) $(CH_3)_3N^-$
(3) $(CH_3)_2N^+$ (4) $(CH_3)_3N^+$

36. 
I II
Which statement is / are correct for the above
(1) Ist form is pseudo acid form
(2) IInd nitrolic acid form
(3) Above equilibrium is tautomerism
(4) All of these correct

37. Which one of the following reactions is an example of Schiemann reaction ?
(1) $C_6H_5N_2Cl \xrightarrow[KCN/H^{\oplus}]{CuCN} C_6H_5-CN$
(2) $C_6H_5N_2Cl \xrightarrow[(ii)\,\Delta]{(i)\ HF/BF_3} C_6H_5-F$
(3) $C_6H_5N_2Cl \xrightarrow{NaNH_2/HOH} C_6H_5-NH_2$
(4) $C_6H_5N_2Cl \xrightarrow{H_3PO_2/KOH} C_6H_5-H$

38. Benzene diazonium chloride can be converted into phenyl hydrazine with
(1) $SnCl_2/HCl$ (2) $LiAlH_4$
(3) $NaBH_4$ (4) Na/C_2H_5OH

39. In the given reaction sequence
$C_6H_5N_2Cl \xrightarrow{SnCl_2/HCl} (X) \xrightarrow{C_6H_5CHO/H^{\oplus}} [Y]$. [Y] will be
(1) $C_6H_5-NHNH_2$ (2) $C_6H_5-NH-NH-C_6H_5$
(3) $C_6H_5-N=N-C_6H_5$ (4) $C_6H_5-CH=N-NH-C_6H_5$

40. Benzene diazonium chloride can couple in the presence of acid with
(1) C_6H_5OH (2) C_6H_5-NHOH
(3) $C_6H_5-N(CH_3)_2$ (4) β-Naphthol

41. Aniline does not give coupling reactions at pH < 5 because
(1) Diazonium salt converts into $C_6H_5-N=N-Cl$ which cannot couple
(2) Aniline converts into $C_6H_5\overset{\oplus}{N}H_3\overset{\ominus}{Cl}$, which cannot couple
(3) Both (1) & (2)
(4) Coupling only takes place in basic medium

42. Match list-I with list-II and select the correct answer using the codes given below:
List I
(a) $C_6H_5-NH_2 \xrightarrow{NaNO_2/HCl}$

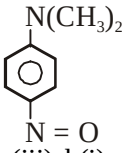
(b) $C_6H_5(CH_3)NH \xrightarrow{NaNO_2/HCl}$

(c) $(CH_3-CH_2-CH_2)_3N \xrightarrow{NaNO_2/HCl}$

(d) $C_6H_5-N(CH_3)_2 \xrightarrow{NaNO_2/HCl}$

List II

(i) $C_6H_5(CH_3)N-N=O$ (ii) $(CH_3-CH_2-CH_2)_3\overset{\oplus}{N}-N=O$

(iii) $C_6H_5-\overset{\oplus}{N}\equiv NCl^{\ominus}$ (iv) 

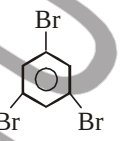
(1) a(iii), b(i), c(ii), d(iv) (2) a(iii), b(i), c(iv), d(ii)
(3) a(i), b(iii), c(iv), d(ii) (4) a(iv), b(iii), c(ii), d(i)

43. Which of the following pairs is correctly matched?
(1) Curtius, carboxylic acid (2) Hofmann, acid azide
(3) Schmidt, carboxylic acid (4) Lossen, acid chloride

44. Amine-N-oxide on heating forms alkene. The reaction is called
(1) Hofmann elimination (2) Saytzef elimination
(3) Cope elimination (4) Peterson elimination

45. Nitrobenzene can be prepared from benzene by using a mixture of conc. HNO_3 and conc. H_2SO_4. In this reaction HNO_3 acts as
(1) Base (2) Acid
(3) Reducing agent (4) Catalyst

46. In the given reaction sequence

$X \xrightarrow{Br_2/H_2O} Y \xrightarrow{NaNO_2/HCl} Z \xrightarrow{C_2H_5OH}$ 

[X] will be:
(1) Benzoic acid (2) Salicylic acid
(3) Phenol (4) Aniline

47. Ethylamine on heating with CS_2 in the presence of $HgCl_2$ forms
(1) C_2H_5NCS (2) $(C_2H_5)_2S$
(3) $(C_2H_5)_2CS$ (4) $C_2H_5(CS)_2$

48. An organic compound (A) on reduction gave a compound (B). Upon treatment with HNO_2, (B) gave ethyl alcohol and on warming with $CHCl_3$ and alcoholic KOH, (B) gave offensive smell. The compound (A) is :
(1) CH_3CN (2) C_2H_5CN
(3) CH_3NH_2 (4) CH_3NC

49. $CH_3CH_2Cl \xrightarrow{NaCN} (X) \xrightarrow{Ni/H_2} (Y) \xrightarrow{\text{Acetic anhydride}} (Z)$

(Z) is the above reaction sequence is :
(1) $CH_3CH_2CH_2NHCOCH_3$
(2) $CH_3CH_2CH_2NH_2$
(3) $CH_3CH_2CH_2CONHCH_3$
(4) $CH_3CH_2CH_2CONHCOCH_3$

50. Which one of the following compounds gives blue colour with base ?
(1) $C_6H_5NO_2$ (2) $CH_3-CH_2-NO_2$
(3) $(CH_3)_2C(NO)-NO_2$ (4) $CH_3-C(=NOH)-NO_2$

51. Which one of the following is natural polymer?
(1) Starch (2) Nylon-6
(3) Terylene (4) Buna-S

52. Which of the following is biopolymer ?
(1) Protein (2) Nucleic acid
(3) Starch (4) All of these

53. Which of the following is not biodegradable polymer?
(1) Protein (2) Nucleic acid
(3) PVC (4) Cellulose

54. Ziegler-Natta catalyst is
(1) R_3Al (2) $TiCl_4$
(3) $R_3Al/TiCl_4$ (4) $R_3B/TiCl_2$

55. Guttapercha is
(1) *cis* poly isopropene (2) *Trans* polyisoprene
(3) Polyethylene (4) Polyisobutylene

56. The function of DNA is :
(1) to synthesis RNA
(2) to synthesis the necessary protein
(3) to carry the heriditary characteristics
(4) all are correct

57. Which of the following is strong adhesive ?
(1) Epoxy resin (2) Melamine-formaldehyde
(3) Alkyd resin (4) Bakelite

58. Cationic polymerisation is initiated by
(1) BF_3 (2) $NaNH_2$
(3) BuLi (4) Both (2) & (3)

59. Which of the following monomers will give cationic polymerisation ?
(1) $CH_2=CH-Cl$ (2) $CH_2=CH-CN$
(3) $CH_2=CH-\overset{O}{\overset{\|}{C}}-OCH_3$ (4) $CH_3-\overset{CH_3}{\overset{|}{C}}=CH_2$

60. Which of the following monomers can undergo radical, cationic as well as anionic polymerisation with equal ease ?

(1) $CH_3-\underset{\underset{CH_3}{|}}{C}=CH_2$ (2) $C_6H_5-CH=CH_2$

(3) $CH_2=CH-CN$ (4) $CH_2=CH_2$

61. In which polymerisation branching of chain cannot be possible ?
(1) Free radical
(2) Cationic
(3) Anionic
(4) Anionic and Ziegler-Natta

62. *Buna-S* is obtained by the polymerisation of butadiene and
(1) Chloroprene (2) Styrene
(3) Acrylonitrile (4) Adipic acid

63. Melmac is a polymer of melamine and
(1) Glycerol (2) Formaldehyde
(3) Cyclohexane (4) Caprolactum

64. The formula of nitroglycerine is
(1) $CH_2OH\text{-}C(NO_2)(OH)\text{-}CH_2OH$
(2) $CH_2OH\text{-}CHNO_2\text{-}CH_2OH$
(3) $CH_2ONO_2\text{-}CHOH\text{-}CH_2ONO_2$
(4) $CH_2ONO_2\text{-}CHONO_2\text{-}CH_2ONO_2$

65. Caprolactum is one of the intermediate for preparing *Nylon-6*. Which of the following can produce caprolactum ?
(1) Formaldehyde (2) Cyclohexanone
(3) Benzene (4) Ethylene glycol

66. *Glyptal* is a polymer of
(1) Ethylene glycol
(2) Ethylene glycol and phthalic acid
(3) Ethylene glycol and adipic acid
(4) Caprolactum

67. Nylon-66 is obtained from
(1) Hexamethylene diamine and adipic acid
(2) Phenol and formaldehyde
(3) Propylene and adipic acid
(4) Adipic acid and phthalic acid

68. The repeating units of PTFE are
(1) Cl_2CHCH_3 (2) $F_2C=CF_2$
(3) F_3CCF_3 (4) $FClC=CF_2$

69. *Plexiglass* is a commercial name of
(1) Glyptal (2) Polyacrylonitrile
(3) Polymethyl methacrylate
(4) Polyethylacrylate

70. The weakest interparticle forces are present in
(1) Thermosetting polymers
(2) Thermoplastic polymers
(3) Fibres (4) Elastomers

71. Which of the following is coated as a thin layer on the inner side of non-sticking pans ?
(1) Bakelite (2) PVC
(3) Teflon (4) Polypropylene

72. When glucose is treated with 2, 4-DNP it forms :
(1) Aniline (2) Osazone
(3) Fructose (4) No reaction

73. C_7H_9N has how many isomeric forms that contain a benzene ring
(1) 4 (2) 5
(3) 6 (4) 7

74. A polymer of Prop-2-enenitrile is called
(1) Saran (2) Orlon
(3) Dacron (4) Teflon

75. The turbidity of a polymer solution measures
(1) A light absorbed by solution
(2) Light transmitted by the solution
(3) Light scattered by the solution
(4) None of these

76. Peptide bond is a key feature in
(1) Polysaccharide (2) Proteins
(3) Nucleotide (4) Vitamins

77. Amylopectin is a polymer of
(1) β–D–glucose (2) α–D–glucose
(3) β–D–fructose (4) α–D–fructose

78. Which one of the following pairs is not correctly matched ?
(1) Terylene – condensation polymer of terephthalic acid and ethylene glycol
(2) Teflon–thermally stable cross linked polymer of phenol and formaldehyde
(3) Perspex – A homopolymer of methyl methacrylate
(4) Synthetic rubber – A copolymer of butadiene and styrene.

79. The bakelite is made from phenol and formaldehyde. The initial reaction between the two compounds is an example of
(1) Aromatic electrophilic substitution
(2) Aromatic nucleophilic substitution
(3) Free radical reaction
(4) Aldol condensation

80. What is NOT true about polymers ?
(1) Polymers do not carry any charge
(2) Polymers have high viscosity
(3) Polymers scatter light

(4) Polymers have low molecular weight.

81. Which one of the following first member of monosaccharides ?

(1) $HOH_2C-\overset{\overset{O}{\|}}{C}-CH_2OH$

(2) $HOH_2C-CHOH-CHO$

(3) $HOH_2C-CHOH-CHOH-CHO$

(4) $HOH_2C-CHOH-\overset{\overset{O}{\|}}{C}-CH_2OH$

82. Maximum number of monosaccharide units present in oligosaccharides is
(1) 5 (2) 15
(3) 9 (4) 40

83. Which of the following is polysaccharide ?
(1) Glucose (2) glycogen
(3) fructose (4) All of these

84. Which one of the following is non-reducing sugar?
(1) Glucose (2) Arabinose
(3) Fructose (4) Sucrose

85. The disaccharide present in milk is :
(1) sucrose (2) lactose
(3) maltose (4) none of these

86. α-D-glucose and β-D-glucose are
(1) Anomers (2) 2-Epimers
(3) 3-Epimers (4) Enantiomers

87. Specific rotation of equilibrium mixture of the three forms of glucose is
(1) 52.5° (2) 112°
(3) 19.5° (4) –90°

88. Which one of the following compounds will show mutarotation ?
(1) Sucrose (2) Starch
(3) Cellulose (4) Maltose

89. Glucose and mannose are
(1) Anomers (2) Positional isomers
(3) Functional isomers (4) Epimers

90. Consider the following reaction

$$\text{Glucose} \xrightarrow{\text{Reagents}} \text{Mannose}$$

The above reaction is known as
(1) Anomerisation (2) Racemisation
(3) Epimerisation (4) Conversion

91. Starch undergoes hydrolysis in presence of mineral acids to :
(1) glucose (2) fructose
(3) maltose (4) sucrose

92. Specific rotation of equilibrium mixture of three forms of fructose is
(1) –92° (2) +92°
(3) –133° (4) –21°

93. Invert sugar is
(1) Sucrose (2) Fructose
(3) Glucose
(4) Equimolar mixture of glucose and fructose

94. Structure of amylose is
(1) Branch chain
(2) Cross linked
(3) Linear with (1 $\rightarrow$ 4´) linkage
(4) Linear with (1 $\rightarrow$ 6´) linkage

95. Digestion is a :
(1) hydrolysis process
(2) catalytic process
(3) both hydrolysis and catalytic process
(4) none of the above

96. Monomer of pectin is
(1) Gluconic acid (2) Glucaric acid
(3) Galactonic acid (4) Mannonic acid

97. Which of the following are synthetic sweetener?
(1) Saccharin (2) Aspartame
(3) Dulcin (4) All of these

98. Aniline can be prepared by
(1) Reductive amination
(2) Gabriel's Reaction
(3) Hofmann's ammonolysis method
(4) None of these.

99. In polysaccharides, the linkage connecting monosaccharide units is called
(1) Ether linkage (2) Glycosidic linkage
(3) Glycogen linkage (4) Peptide linkage

100. Glucose reacts with acetic anhydride to form
(1) Mono acetate (2) Tetra acetate
(3) Penta acetate (4) Hexa acetate

101. In the given reaction
Glucose + n-Phenylhydrazine $\rightarrow$ Osazone
The value of n is
(1) Three (2) Two
(3) One (4) Four

102. The number of chiral carbon atoms in β-D(+)-glucose molecule is :
(1) 3 (2) 5
(3) 4 (4) 6

103. Which of the following is essential amino acids?
(1) Valine (2) Threonine

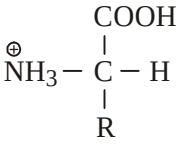
(3) Lysine (4) All of these

104. Which α -amino acid does not contain primary amino group?
(1) Proline (2) Threonine
(3) Lysine (4) All of these

105. Lysine is which type of amino acid ?
(1) β-Amino acid (2) Acidic
(3) Basic (4) Neutral

106. Which one of the following compounds exist as dipolar ion?
(1) Carbohydrate
(2) Long chain fatty acids
(3) Amino acid
(4) α -Halo carbonyl compound

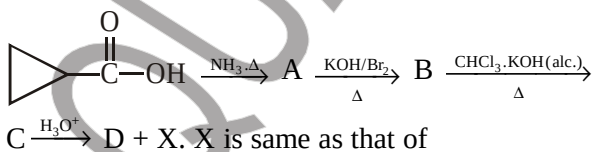
107. The given structure of α -amino acid will exist at which pH?



(1) 7 (2) 14
(3) 0 (4) 12

108. Which of the following statements are correct?
I. α -Amino acids present in protein are α -L-amino acids
II. Amino acids contains $-NH_2$ as well as –COOH group
III. Number of amino groups and carboxylic groups are always same in all α -amino acids
IV. Concentration of dipolar ion is maximum at isoelectric point
Select the correct answer from the codes given below:
(1) Only I and II (2) I, II and III
(3) I, II and IV (4) I, II, III and IV

109. Consider the reaction,



C $\xrightarrow{H_3O^+}$ D + X. X is same as that of
(1) A (2) B
(3) C (4) D

110. In the given polypeptide Arg – Try – Ile – Asn – Gly C-terminus amino acid is
(1) Gly (2) Arg
(3) Try (4) Asn

111. Which of the following amino acid forms sulphide bond in polypeptide ?
(1) Arg (2) Cys
(3) Leu (4) Gly

112. Number of α -amino residue present in oxytocin is
(1) 8 (2) 9
(3) 7 (4) 6

113. Fibrous protein are insoluble in
(1) Strong acid (2) Strong base
(3) Both (1) & (2) (4) Water

114. Albumin is which type of protein ?
(1) Simple (2) Conjugated
(3) Derived (4) Glycoprotein

115. Primary structure of protein contains which type of bonds ?
(1) Only covalent (2) Only hydrogen
(3) Only Van der Waal (4) All of these

116. α -Helix structure is
(1) Primary structure (2) Secondary structure
(3) Tertiary structure (4) Quaternary structure

117. Denaturation of protein takes place by
(1) Heating (2) Addition of acid or base
(3) Addition of urea (4) All of these

118. Enzyme trypsin converts :
(1) amino acids into proteins
(2) glucose into glycogen
(3) starch into sugar
(4) proteins into amino acids

119. Sugar present in DNA is
(1) D-Deoxyribofuranose (2) D-Deoxyribopyranose
(3) D-Ribofuranose (4) D-Ribopyranose

120. Which of the following bases are not found in DNA?
(1) Uracil (2) Thymine
(3) Cytosin (4) Guanine

121. In Purine nucleosides C-1 of sugar forms glycosidic linkage with which position of purine?
(1) 1 (2) 3
(3) 9 (4) 8

122. The sequence in which amino acids are arranged in protein is called its :
(1) primary structure (2) secondary structure
(3) tertiary structure (4) quanternary structure

123. Which ratio is always one in nucleic acid ?
(1) A/T (2) G/T
(3) C/T (d)U/T

124. Number of hydrogen bonds between G and C is
(1) One (2) Two
(3) Four (4) Three

125. Which of the following is fat soluble vitamin?

(1) K (2) C
(3) B (4) All of these

126. Which base is not present in RNA ?
(1) Thymine (2) Uracil
(3) Adenine (4) Cytosine

127. RNA is
(1) Single helix strand (2) double helix strand
(3) Triple helix strand (4) Any one of these

128. Which of the following is vitamin-E?
(1) Retinol (2) Tocopherol
(3) Calciferol (4) Ascorbic acid

129. Genetic material of the cell is
(1) Lipids (2) Nucleic acid
(3) Proteins (4) Carbohydrate

130. The most important energy carrier in all the living cell is
(1) AMP (2) ATP
(3) ADP (4) UPP

131. Deficiency of vitamin-C causes
(1) Scurvy (2) Rickets
(3) Pernicious anaemia (4) All of these

132. Enzyme in the living system
(1) Provides energy (2) Provides immunity
(3) Transport oxygen
(4) Catalyses biological processes

133. Which of the following gives maximum energy in metabolic processes ?
(1) Proteins (2) Vitamins
(3) Lipids (4) Carbohydrates

134. Vitamin-D deficiency causes
(1) Rickets (2) Night blindness
(3) Xerosis (4) Loss of appetite

135. Which of the following is/are important source of vitamins ?
(1) Oranges (2) Milk
(3) Green vegetables (4) All of these

136. Aldenosine is an example of
(1) Nucleotide (2) Nucleoside
(3) Purine base (4) Pyrimidine base

137. The end product of protein digestion is
(1) Urea (2) Amino acids
(3) Peptides (4) Amines

138. The relationship between the nucleotide triplets and the amino acid is called:
(1) enzymes (2) replication
(3) genetic code (4) mutation

139. The number of ATP molecules needed for the oxidation of one molecule of glucose in living cell is
(1) 32 (2) 50
(3) 18 (4) 38

140. Structure of DNA molecule is
(1) Single stranded (2) Linear
(3) Branched (4) Double stranded

141. Sulpha drugs are derivatives of
(1) *para*-aminobenzoic acid
(2) *para*-aminobenzenesulphonic acid
(3) *para*-aminobenzenesulphonamide
(4) *para*-aminobenzenesulphonylchloride

142. Which one of the following is antimetabolites of bacteria ?
(1) PABA
(2) para-aminobenzenesulphonamide
(3) Both (1) & (2)
(4) Benzenesulphonic acid

143. Which of the following is not broad spectrum antibiotics ?
(1) Ampicillin (2) Tetracyclin
(3) Chloroamphenicol (4) Fluoroquinotones

144. Barbiturate drug is used as
(1) Anaesthetic (2) Sedative
(3) Antiseptic (4) Antihistaminic

145. Which one of the following is antibiotic ?
(1) Aspirin (2) Brufen
(3) Chloromycetin (4) Chloroquine

146. Heroin is
(1) Narcotics (2) Non-narcotics
(3) Anti-malarial (4) Anaesthetic

147. Which of the following is not pesticide ?
(1) Equanil (2) BHC
(3) DDT (4) Malathion

148. Which one of the following medicine is used in malaria ?
(1) Brufen (2) Aspirin
(3) Chloroquine (4) Paracetamol

149. Acetoxybenzoic acid is
(1) Antiseptic (2) Aspirin
(3) Antibiotic (4) Mordant

150. Which of the following is an antipyretic ?
(1) Quinine (2) Paracetamol
(3) Luminol (4) Paprazine

151. Which of the following statement is not true?
(1) Some disinfactants can be used as antiseptics at low concentration
(2) Sulphadiazine is a synthetic antibacterial
(3) Ampicillin is natural antibiotic
(4) Aspirin is both analgesic and antipyretic

152. Match list-I with list-II and give correct answer from the codes given below :

List - I	List - II
(a) Antipyretic	(i) Ampecillin
(b) Tranquilliser	(ii) Paracetamol
(c) Antibiotic	(iii) Luminal
(d) Antimalarial	(iv) Quinine

(1) a(ii), b(iii), c(i), d(iv) (2) a(ii), b(iii), c(iv), d(i)
(3) a(iii), b(ii), c(i), d(iv) (4) a(iv), b(iii), c(ii), d(i)

153. DDT is an example of
(1) Fungicide (2) Herbicide
(3) Insecticide (4) Analgesic

154. Chloroamphenicol is used for the treatment of
(1) Typhoid (2) Pneumonia
(3) Fever (4) Bronchitis

155. Which one of the following is an example of composite rocket propellant ?
(1) Polyurethane, ammonium perchlorate and Al
(2) Polyurethane, ammonium chloride and Mg
(3) Polyurethane, ammonium hydroxide and Al
(4) All of these

156. Which of the following are example of biliquid propellant ?
(1) Alcohol and N_2O_4
(2) Nitroglycerine and nitrocellulose
(3) Nitromethane and H_2O_2
(4) All of these

157. SLV-3 and ASLV rockets used which type of propellant ?
(1) Composite solid (2) Hybrid
(3) Double base (4) Biliquid

158. In PSLV the first stage propellant is
(1) Solid (2) Liquid (mono)
(3) Hybrid (4) Liquid (bi)

159. In Titan ballistic missile the propellant used is
(1) Only $NH_2 - NH_2$ (2) Only N_2O_4
(3) Mixture of $NH_2 - NH_2$ and N_2O_4
(4) Nitroglycerine

160. Propellant used in space shuttle is
(1) Liquid oxygen (2) Liquid hydrogen
(3) Hydrazine/N_2O_4
(4) Mixture of liquid hydrogen and liquid oxygen

161. Which one of the following is direct dye ?
(1) Martius yellow (2) Aniline yellow
(3) Malachite green (4) All of these

162. Which one of the following is an example of an azo dye ?
(1) Alizarin (2) Methyl orange
(3) Indigo (4) Martius yellow

163. Which one of the following is an example of basic dye ?
(1) Martius yellow (2) Malachite green
(3) Alizarin (4) Phenolphthalein

164. Which one of the following groups can be present in the basic dyes ?
(1) OH (2) NO_2
(3) NMe_2 (4) SO_3Na

165. Which one of the following is broad spectrum antibiotics ?
(1) Penicillin-G (2) Salicylamide
(3) Benzyl penicillin (4) Auromycin

166. Elements present in equanil are
(1) C and H (2) C, H and O
(3) C, H, O and N (4) C, H, O, N and S

167. Match List I (Monomer) with List II (Polymer) and select the correct answer using codes:

List I	List II
(a) Methyl methacrylate	(i) Teflon
(b) Tetrafluoroethylene	(ii) Nylon-610
(c) Caprolactum	(iii) Nylon–6
(d) Hexamethylene diamine + Sebacic acid	(iv) Lucite

(1) a(iv), b(iii), c(i), d(ii) (2) a(i), b(iv), c(iii), d(ii)
(3) a(iv), b(i), c(iii), d(ii) (4) a(iv), b(i), c(ii), d(iii)

168. Which is not correctly matched ?

Test		*For which it is performed*
(1) Molisch test	–	Carbohydrates
(2) Biuret test	–	Proteins
(3) Salvinoff test	–	Fructose
(4) Ninhydrin test	–	Fats

169. Amino acids are building blocks of :
(1) carbohydrates (2) fats
(3) proteins (4) vitamins

170. Structures of alanine at pH = 2 and pH = 10 are respectively

(1) $NH_3^+-CH(CH_3)-COOH$ and $H_2N-CH(CH_3)-COO^-$

(2) $H_2N-CH(CH_3)-COO^-$ and $NH_3^+-CH(CH_3)-COOH$

(3) $NH_2-\underset{\displaystyle CH_3}{\underset{|}{CH}}-COOH$ both

(4) $\overset{+}{N}H_3-\underset{\displaystyle CH_3}{\underset{|}{CH}}-COOH$ both

171. The digestion of fat in intestines is aided by :
(1) diffusion (2) peptization
(3) emulsification (4) neutralisation

172. Which of the following is not a sex hormone?
(1) Testosterone (2) Estrone
(3) Estradiol (4) Cortisone

173. Which of the following polymers does not exist in isotactic, syndiotactic and Atactic forms ?
(1) Polypropylene
(2) Poly (ethylidene) chloride
(3) PVC (4) PAN

174. The hormone which transports glucose from blood to tissue is :
(1) glucogen (2) insulin
(3) thyroxin (4) heparin

175. In an amino acid, the carboxyl group ionises at pKa, = 2.34 and ammonium ion at pKa = 9.60. The isoelectric point of the amino acid is at pH
(1) 5.97 (2) 2.34
(3) 9.60 (4) 6.97

176. Arrange $CH_2 = CH - CH_3$ (I), $CH_2 = CH - C_6H_5$ (II) and $CH_2 = CH - Cl$ (III) in increasing order of ease of cationic polymerization
(1) III < II < I (2) I < II < III
(3) III < I < II (4) II < I < III

177. Which has maximum protein ?
(1) Ground nut (2) Cow milk
(3) Egg (4) Wheat

178. Hydrazine as a drug is also used in the treatment of
(1) Typhoid (2) Cholera
(3) Malaria (4) Tuberculosis

179. The chemical part of the dye that absorbs light and produces colour is called
(1) Photochrome (2) Chromophore
(3) Auxochrome (4) Photosensitizer

180. The dyes which are used in reduced state and then oxidized by air are
(1) Azo dyes (2) Vat dyes
(3) Disperse dyes (4) Basic dyes

181. Thyroxine is hormone which
(1) Is secreted by thyroid glands
(2) Does not stimulates metabolism
(3) Decreases blood sugar
(4) Is secreted by pancreas

182. Saliva contains
(1) Amylase or ptyalin (2) Trypsin
(3) Bile fluid (4) Vitamins

183. Enzyme trypsin converts
(1) Proteins into α -amino acids
(2) Starches into sugar
(3) Glucose into glycogen
(4) α -Amino acids into proteins

184. Which of the following statements are correct about Aldoses ?
(1) They give positive Fehling's Test
(2) Undergo osazone reaction
(3) Fail to respond schiff and bisulphite tests
(4) All of these

185. Galactose is converted into glucose in
(1) Mouth (2) Stomach
(3) Liver (4) Intestine

186. The principal buffer present in the blood is
(1) CH_3COONH_4
(2) CH_3COOH/CH_3COONa
(3) CO_2/HCO^-_3
(4) NaH_2PO_4/Na_2HPO_4

187. Lysine is
(1) Neutral amino acids
(2) Acidic amino acids
(3) Basic amino acids
(4) Amino acid having pH = 0

188. In DNA, the complementary bases are
(1) Uracil and adenine : Cytosine and guanine
(2) Adenine and thymine : guanine and cytosine
(3) Adenine and thymine : guanine and uracil
(4) Adenine and guanine : thymine and cytosine

189. How many different dipeptides can be formed by two different amino acids?
(1) 4 (2) 1
(3) 3 (4) 2

190. The number of polypeptide chain present in molecule of haemoglobin is
(1) Four (2) One
(3) Two (4) Six

191. Cobalt is present in
(1) Vitamin A (2) Vitamin B_6

(3) Vitamin C (4) Vitamin B_{12}

192. The vitamin which is water soluble and antioxidant is :
(1) vitamin C (2) vitamin B
(3) vitamin E (4) vitamin D

193. An amine contains 31.22% nitrogen. On treatment with nitrous acid, it gives a yellow oily liquid nitrosoamine. The amine is
(1) $\begin{matrix}CH_3\\CH_3\end{matrix}\!\!>\!\!NH$ (2) $\begin{matrix}C_2H_5\\C_2H_5\end{matrix}\!\!>\!\!NH$
(3) $\begin{matrix}C_2H_5\\CH_3\end{matrix}\!\!>\!\!NH$ (4) $C_2H_5-NH_2$

194. With which of the following cations, alizarin will impart a violet colour on the fabrics?
(1) Fe^{3+} (2) Cr^{3+}
(3) Ba^{2+} (4) Al^{3+}

195. Pyrolysis of $\begin{matrix}CH_3\\CH_3\end{matrix}\!\!>\!\overset{+}{N}(O^-)-\!<\!\begin{matrix}CH_3\\CD_3\end{matrix}$ would give _____ by _____ reaction
(1) $(CH_3)_2\overset{+}{N}=C(CD_3)(CH_3)$, Cope elimination
(2) Mixture of $CH_2=CH-CD_3$ and $CH_3-CH=CD_2$, Cope elimination
(3) $CH_2=CH-CD_3$, Hoffmann elimination
(4) Mixture of $CH_2=CH-CD_3$ and $CH_3-CH=CD_2$, Hoffmann martius rearrangement

196. The compound that will react most readily with NaOH to form methanol is
(1) $(CH_3)_4N^+I^-$ (2) CH_3OCH_3
(3) $(CH_3)_3S^+I^-$ (4) $(CH_3)_3CCl$

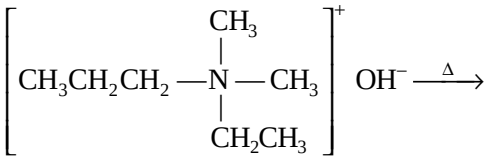
197. The number of chromophores in picric acid is :
(1) 1 (2) 2
(3) 3 (4) 4

198. Which of the following is used as hypnotic?
(1) metaldehyde (2) acetaldehyde
(3) paraldehyde (4) none of these

199. Arrange the following in increasing basicity order:
I. $F_2CHCH_2NH_2$ II. $F_3C\ CH_2NH_2$
III. 
(1) I < II < III (2) II < I < III
(3) I < III < II (4) II < III < I

200. Which of the following is used to make paints and lacquers?
(1) Polystyrene (2) Polyvinyl chloride
(3) Glyptal (4) Nylon

SUBJECTIVE QUESTIONS

1. 

   What are the products due to Hofmann elimination?

2. Solubility of cyanides in water is generally more than solubility of Isocyanides

3. Primary amines can also be prepared by the reaction of an alkyl halide with azide ion followed by catalytic hydrogenation. What advantage do this method and the Gabriel synthesis have over the synthesis of primary amine using an alkyl halide and ammonia?

4. How will you prepare?

   (a) Sulphanilic acid from aniline?

   (b) Dimethylamine from Acetic acid

5. What happens when

   (a) Ethyl cyanide is treated with methyl magnesium bromide followed by hydrolysis.

   (b) Nitroethane is reduced with zinc and ammonium chloride.

   (c) Alkyl cyanide is reduced with sodium metal in ethanol.

6. How will you distinguish.

   $CH_3–CH_2–NH_2$ & $CH_3-CH_2-\underset{\displaystyle CH_3}{\overset{\displaystyle |}{N}}-CH_3$

7. Write the monomeric units of following polymers

   (a) Neoprene (b) Nylon-6

   (c) Teflon (d) Orlon

8. Why amines are more basic than amides?

9. The —CN group in aryl cyanides is meta directing. How will you account for it?

10. Arrange the following sets in order of decreasing basic strength

    (a) Ethyl amine, ammonia, triethylamine

    (b) Aniline, p-Nitroaniline, p-Toluidine

11. Write the short notes on

    (a) Epimers of D-Glucose

    (b) Mutarotation

12. What are Antioxidant? Write the name of any two antioxidants?

13. What is difference between “Composite propellant” and “double base propellant” of rocket?
14. What are Antacids? Give name of some compounds which are used as Antacids?
15. Give the structures of hydroazobenzene and azoxybenzene. How they can be interconverted into each other.
16. Name three vitamins which are water soluble and three which are soluble in fat.
17. Why are liquid propellants regarded better than solid propellants?
18. What are the hydrolysis products of
    (a) Sucrose
    (b) Lactose
    (c) Maltose
19. Explain
    (a) Chromophore group
    (b) Auxochrome group
20. How are antiseptic distinguished from disinfectant?

ANSWERS

Quantum Success Mantraa: SCQ-NCERT Based

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