

Exercise-1**ONLY ONE OPTION CORRECT TYPE****Section (A) : Carbohydrate : Monosaccharide, Disaccharide, Polysaccharide**

1. Carbohydrates are synthesized in plants by a process called :
(1) Photodegradation (2) Photocyclization (3) Photosynthesis (4) Photoaddition.
2. A carbohydrate which cannot be hydrolysed to simpler compounds is called.
(1) Monosaccharide (2) Disaccharide (3) Polysaccharide (4) Oligosaccharide.
3. Monosaccharides contain
(1) Always six carbon atoms (2) Always five carbon atoms
(3) Always four carbon atoms (4) May contain 3 to 7 carbon atoms.
4. Which of the following carbohydrates is a monosaccharide ?
(1) Sucrose (2) Maltose (3) Fructose (4) Starch
5. Glucose is a/an
(1) Aldohexose (2) Aldopentose (3) Aldotetrose (4) Ketohexose
6. Which one of the following is a pentose sugar ?
(1) Ribose (2) Glucose (3) Fructose (4) All the three
7. All monosaccharides containing five or six carbon atoms have
(1) Open chain structures (2) Pyranose structures
(3) Furanose structures (4) May have pyranose or a furanose structures
8. A dextrorotatory sugar present in fruits is :
(1) Glucose (2) Fructose (3) Cellulose (4) Starch
9. Which of the following reduces Tollen's reagent ?
(1) Glucose (2) Fructose (3) Lactose (4) All
10. Which of the following is a non-reducing sugar ?
(1) Sucrose (2) Maltose (3) Lactose (4) Ribose
11. Glucose reduces
(1) Tollen's reagent (2) Fehling's solution (3) Benedict's solution (4) All
12. The reagent used to detect sugar (glucose) in the urine is :
(1) Tollen's reagent (2) Fehling's solution (3) Baeyer's reagent (4) Brady's reagent
13. Which of the following form/s osazone with phenylhydrazine ?
(1) Glucose (2) Fructose (3) Maltose (4) All the three above
14. Glucose and mannose are :
(1) Optical isomers (2) Anomers (3) Epimers (4) Chain isomers
15. The function of glucose is to :
(1) Provide energy (2) Promote growth (3) Prevent diseases (4) Perform all the above
16. A disaccharide on hydrolysis gives
(1) Two molecules of the same monosaccharide
(2) One molecule each of two different monosaccharides
(3) Three molecules of the same monosaccharide

- (4) Two molecules of same or different monosaccharides.
17. Acid or enzymatic hydrolysis of sucrose to give an equimolar mixture of glucose and fructose is called
 (1) Esterification (2) Inversion (3) Saponification (4) Insertion
18. The Number of chiral centres present in D-(+)-glucopyranose is
 (1) 2 (2) 6 (3) 3 (4) 4
19. Complete hydrolysis of cellulose yields
 (1) L-glucose (2) D-fructose (3) D-glucose (4) D-ribose
20. The two forms of D-Fructopyranose differ in the configuration at
 (1) C-1 (2) C-2 (3) C-3 (4) C-4

Section (B) : Proteins & Amino Acids

1. Proteins are condensation polymers of
 (1) α -Amino acids (2) β -Amino acids (3) α -Hydroxy acids (4) β -Hydroxy acids.
2. Proteins are
 (1) Polyamides (2) Polyesters (3) Polyhydric alcohols (4) Polycarboxylic acids
3. The peptide bond is :
 (1) $-\text{CONH}_2$ (2) $-\text{CONH}-$ (3) $-\text{COONH}_4$ (4) $-\text{N}=\text{C}=\text{O}$
4. Which of the following α -amino acids does not contain a chiral carbon ?
 (1) Glycine (2) Alanine (3) Phenylalanine (4) Valine.
5. In aqueous solution, amino acids mostly exist as :
 (1) $\text{NH}_2-\text{CHR}-\text{COOH}$ (2) $\text{NH}_2-\text{CHR}-\text{COO}^-$
 (3) $\text{N}_3^+\text{N}-\text{CHR}-\text{COOH}$ (4) $\text{H}_3\text{N}^+-\text{CHR}-\text{COO}^-$
6. Rice is deficient in :
 (1) Lysine (2) Alanine (3) Glycine (4) Isoleucine
7. Denaturation of proteins can be carried out by
 (1) Heat (2) Mineral acids (3) Bases (4) All three above
8. Cheese is a :
 (1) Globular protein. (2) Cojugated protein. (3) Denatured protein. (4) Derived protein.
9. Mark the wrong statement about denaturation of proteins :
 (1) The primary structure of the protein does not change.
 (2) Globular proteins are converted into fibrous proteins.
 (3) Fibrous proteins are converted into globular proteins.
 (4) The biological activity of the protein is destroyed.
10. The bond that determines the secondary structure of a protein is :
 (1) Co-ordinate bond (2) Covalent bond (3) Hydrogen bond (4) Ionic bond
11. Proteins are denatured in the
 (1) Mouth (2) Stomach (3) Small intestine (4) Large intestine
12. Which protein is main constituent of milk ?
 (1) Casein (2) Insulin (3) Myosine (4) Keratin

13. Which of the following proteins contains a transition metal ion ?
 (1) α -Keratin (2) β -Keratin (3) Myoglobin (4) Insulin
14. The Haemoglobin molecule contains
 (1) two α - and two β -polypeptide chains, and two haeme groups
 (2) one α - and one β -polypeptide chains, and two haeme groups
 (3) two α - and two β -polypeptide chains, and four haeme groups
 (4) one α - and one β -polypeptide chains, and one haeme groups
15. Which of the following amino acids possesses two chiral centres ?
 (1) Threonine (2) Proline (3) Phenylalanine (4) Serine
16. The two pK_a values of L-valine are 2.32 and 9.62. Its isoelectric point pI is :
 (1) 7.0 (2) 11.94 (3) 5.97 (4) 9.62
17. The α -amino acid that possesses a primary alcohol group ($-\text{CH}_2\text{OH}$) is
 (1) threonine (2) serine (3) cysteine (4) tyrosine
18. In which of the following forms glutamic acid will exist in solution at pH 6.0 ?
 (1) $\text{HOOC}(\text{CH}_2)_2\underset{\text{NH}_3^+}{\text{CHCOO}^-}$ (2) $\text{HOOC}(\text{CH}_2)_2\underset{\text{NH}_3^+}{\text{CHCOOH}}$
 (3) $^-\text{OOC}(\text{CH}_2)_2\underset{\text{NH}_3^+}{\text{CHCOO}^-}$ (4) $^-\text{OOC}(\text{CH}_2)_2\underset{\text{NH}_2}{\text{CHCOO}^-}$

Section (C) : Polymers

1. Starch is polymer of
 (1) α -D-Glucose (2) β -D-Glucose
 (3) α -D-Glucose and β -D-Glucose (4) α -D-Fructose
2. Nylon -6,6 is made by using
 (1) Phenol (2) Benzaldehyde (3) Adipic acid (4) Succinic acid
3. Polymer which has amide linkage is
 (1) Nylon -6,6 (2) Terylene (3) Teflon (4) Bakelite
4. Ziegler-Natta catalyst is
 (1) $\text{K}[\text{PtCl}_3(\text{C}_2\text{H}_4)]$ (2) $(\text{Ph}_3\text{P})_3\text{RhCl}$ (3) $\text{Al}_2(\text{C}_2\text{H}_5)_6 + \text{TiCl}_4$ (4) $\text{Fe}(\text{C}_5\text{H}_5)_2$
5. Monomer of given polymer $\left[\begin{array}{c} \text{CH}_3 \\ | \\ -\text{C}-\text{CH}_2- \\ | \\ \text{CH}_3 \end{array} \right]_n$ is :
 (1) 2-Methylpropene (2) Styrene (3) Propylene (4) Ethene
6. Which of the following is a nitrogen containing polymer ?
 (1) Polyvinyl chloride (2) Bakelite (3) Nylon (4) Terylene
7. Buna-S is a polymer of :
 (1) Butadiene only (2) Butadiene and nitril

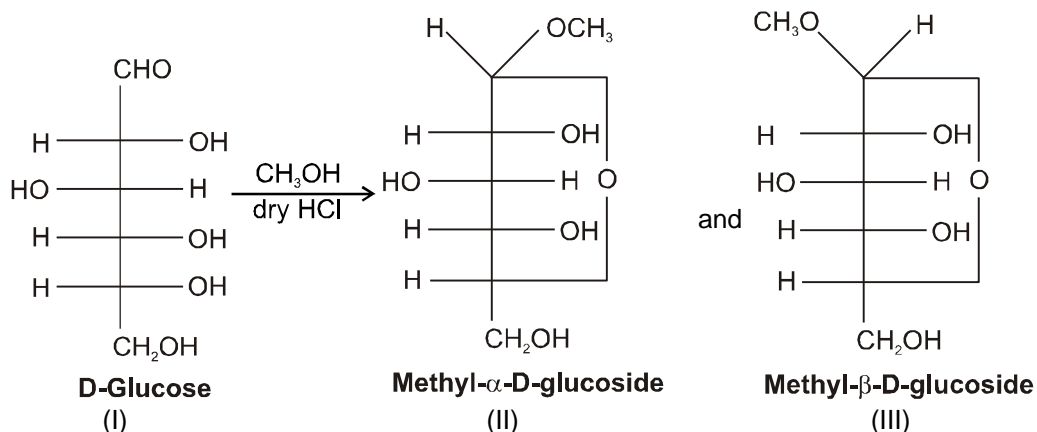
- (3) Styrene only (4) Butadiene and styrene
8. Condensation product of caprolactum is :
 (1) nylon-6 (2) nylon-6, 6 (3) nylon-60 (4) nylon-6, 10
9. Preparation of nylon from hexamethylene diamine and adipic acid is an example of :
 (1) addition polymerisation (2) homopolymerisation
 (3) condensation polymerisation (4) All of these
10. Structures of some common polymers are given. Which are correctly presented ?
 (1) Teflon $\left(\text{CF}_2 - \text{CF}_2 \right)_n$ (2) Nylon-6,6 $\left[\text{NH}(\text{CH}_2)_6\text{NHCO}(\text{CH}_2)_4\text{CO} \right]_n$
 (3) Terylene $\left(\text{OC} - \text{C}_6\text{H}_4 - \text{COOCH}_2\text{CH}_2\text{O} \right)_n$ (4) All of these
11. The monomer used for preparing neoprene rubber is
 (1) $\text{CH}_2 = \overset{\text{CH}_3}{\text{C}} - \text{CH} = \text{CH}_2$ (2) $\text{CH}_2 = \overset{\text{Cl}}{\text{C}} - \text{CH} = \text{CH}_2$ (3) $\text{CH}_2 = \text{CHCl}$ (4) $\text{CF}_2 = \text{CF}_2$
12. Which of the following is a polyamide ?
 (1) Teflon (2) Bakelite (3) Terylene (4) Nylon 6, 6
13. Which of the following is a chain-growth polymer ?
 (1) Nucleic acid (2) Starch (3) Proteins (4) Polystyrene
14. Terylene is a condensation polymer of terephthalic acid and
 (1) phenol (2) glycerol (3) ethylene glycol (4) propylene glycol
15. Which of the following is not a copolymer ?
 (1) Buna-S (2) Dacron (3) Bakelite (4) Orlon
16. Which of the following is copolymer ?
 (1) Nylon-6 (2) Lucite (3) Terylene (4) Gutta-percha
17. Which of the following is a fully fluorinated polymer ?
 (1) Teflon (2) Neoprene (3) PVC (4) Freon
18. Which of the following is a biodegradable polymer ?
 (1) Polythene (2) Polyvinyl chloride (3) Cellulose (4) Teflon
19. Dacron is a copolymer of ethylene glycol and
 (1) phthalic acid (2) adipic acid (3) benzoic acid (4) terephthalic acid
20. Which of the following is a step-growth polymer ?
 (1) Teflon (2) Terylene (3) Orlon (4) Neoprene

Exercise-2

ONLY ONE OPTION CORRECT TYPE

1. On hydrolysis, proteins give :
 (1) nucleotides (2) nucleosides (3) amides (4) amino acids

2. Sucrose reacts with acetic anhydride to form
 (1) Penta-acetate (2) Hexa-acetate (3) Tetra-acetate (4) Octa-acetate
3. D-glucose, on treating with methanol in presence of dry HCl gives methyl glucosides according to the following reaction



Mention true (T) and False (F) from the following statements

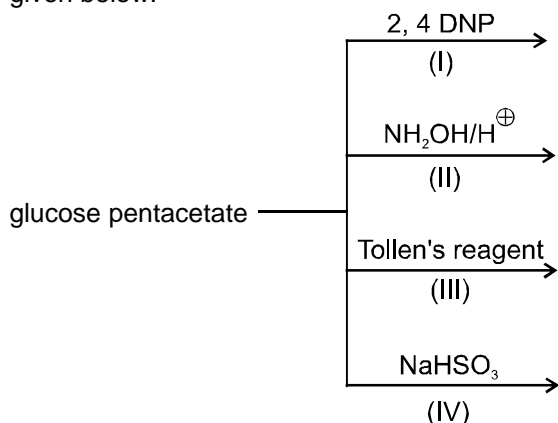
S_1 : The glucosides do not reduce fehling's solution

S_2 : The glucosides do not react with hydrogen cyanide or hydroxylamine

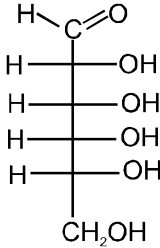
S_3 : Behaviour of glucosides as stated in S_1 and S_2 indicates the absence of free – CHO group.

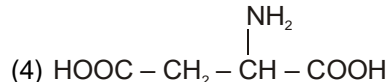
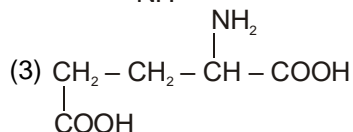
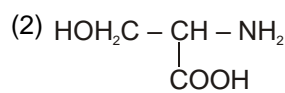
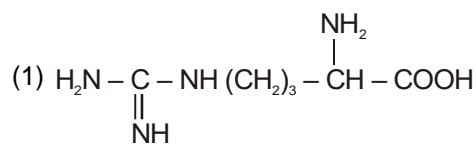
S_4 : The two forms of glucosides are enantiomers.

- (1) TTFF (2) FTTT (3) TTTF (4) TFTF
4. Observe the following laboratory tests for glucose pentacetate and mention +ve or –ve from the code given below.

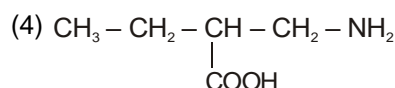
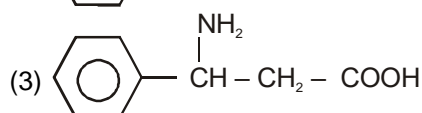
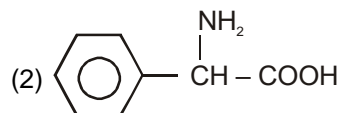
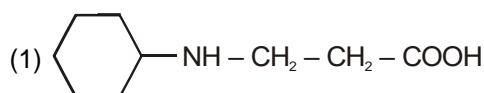


- (1) + + + + (2) – – – – (3) + – + – (4) + + – –
5. Which of the following is a copolymer of vinyl chloride and vinylidene dichloride ?
 (1) Nylon (2) Saran (3) Dacron (4) Orlon
6. Which of the following polymers has the least intermolecular force of attraction ?
 (1) Nylon 6 (2) Polyvinyl chloride (3) Natural rubber (4) Cellulose
7. Which of the following polymers is used in making non-stick cookware ?
 (1) Polytetrafluorethene (2) polystyrene
 (3) Polyvinyl chloride (4) Polyacrylonitrile

8. The carbohydrates which serves as a reserve glucose in body is :
 (1) sucrose (2) starch (3) glycogen (4) fructose
9. The substances which are even richer sources of energy than carbohydrates are :
 (1) fats (2) proteins (3) vitamins (4) hormones
10. Proteins is an important constituent of our diet. It functions mainly as :
 (1) a source of energy (2) a construction material
 (3) shock absorber (4) reserve food
11. The coagulation of protein is called :
 (1) dehydration (2) decay (3) deamination (4) denaturation
12. α -D (+) glucopyranose is
 (1) acetal (2) ketal (3) hemiacetal (4) hemiketal
13.  Allose
 Given monosaccharide is a/an
 (1) Aldopentose (2) Aldohexose (3) Ketopentose (4) Aldoheptose
14. Point out the wrong statement about proteins :
 (1) they are nitrogenous organic compounds of high molecular masses.
 (2) on hydrolysis by enzymes, they give amino acids
 (3) many of them are enzymes
 (4) they do not contain polypeptide linkages
15. On heating glucose with Fehling's solution, we get a precipitate whose colour is :
 (1) yellow (2) red (3) black (4) white
16. Which of the following pairs is (are) correctly matched
 (1) α - D (+) glucose and β -D(+) glucose \rightarrow C-2 epimers
 (2) Glucose and fructose \rightarrow C - 3 epimers
 (3) Glucose \rightarrow Furanose ring
 (4) Sucrose \rightarrow Glucose + fructose
17. The organic compounds of high physiological importance which are essential in small amounts for the well-being of all human beings are :
 (1) proteins (2) vitamins (3) mineral salts (4) enzymes
18. Which of the following foodstuffs contain nitrogen ?
 (1) Carbohydrates (2) Protein (3) Fats (4) None of these
19. Which of the following can exhibit the phenomenon of mutarotation?
 (1) (+) Lactose (2) (+) Maltose (3) (–) Fructose (4) All of these
20. The protein which transports oxygen in the blood stream is :
 (1) haemoglobin (2) insulin (3) collagen (4) albumin
21. Which has the maximum protein ?
 (1) Groundnut (2) Cow-milk (3) Egg (4) Wheat
22. Which of the following is a basic amino acid?



23. Which of the following is α - amino acid ?



24. The most important energy carrier in the living cell is :

- (1) AMP (2) ADP (3) UDP (4) ATP

25. Test of the presence of amino acid is done by

- (1) Tollen's reagent (2) Schiff's reagent (3) Benedict solution (4) Ninhydrin reagent

26. Biurets test is used for the detection of :

- (1) sugars (2) fats (3) proteins (4) saturated oils

27. Which enzyme hydrolyse triglyceride to fatty acids and glycerol ?

- (1) Lipase (2) Maltase (3) Amylase (4) Pepsin

28. Cellulose is a linear polymer of :

- (1) α -glucose (2) β -glucose (3) α -fructose (4) amylose

29. The aqueous solution of carbohydrate gave a dark blue colour with iodine solution. The carbohydrates is :

- (1) glucose (2) fructose (3) sucrose (4) starch

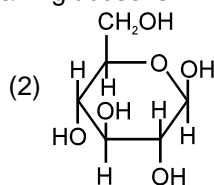
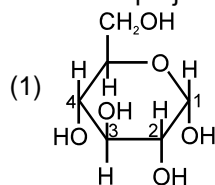
30. In ketohexose the possible optical isomers are

- (1) 12 (2) 4 (3) 16 (4) 8

31. Which of the following indicates the presence of 5 -OH groups in glucose

- (1) Penta-acetyl derivative of glucose (2) Cyanohydrin formation of glucose
(3) Reaction with fehling's solution (4) Reaction with Tollen's reagent

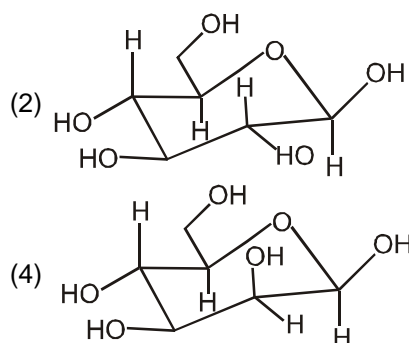
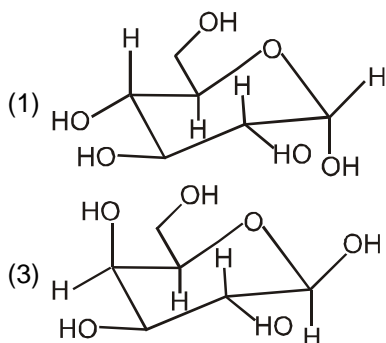
32. Haworth's projection of α -D glucose is :



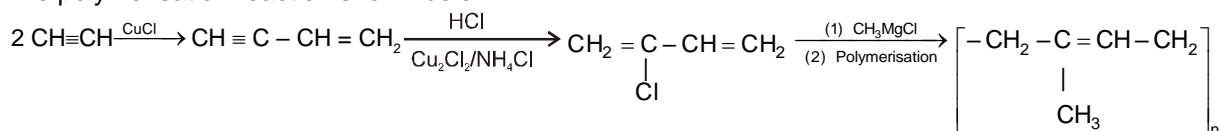
(3) both

(4) none

33. Which is correct structure of β -D-glucopyranose.



34. The polymerisation reaction shown below



would produce :

- (1) PVC (2) neoprene (3) chloroprene (4) Rubber
35. Which of the following contains isoprene unit?
 (1) Natural rubber (2) Polyethylene (3) Nylon – 6,6 (4) Dacron
36. Which is only amino acid, whose N and α carbon atoms are part of a ring.
 (1) Proline (2) Glycine (3) Alanine (4) Valine
37. Isoelectric point is defined as :
 (1) α , carbon of the amino acid
 (2) pH at which anionic ion is balanced by cationic forms
 (3) Concentration of ions, when no electrophoresis occurs.
 (4) Pressure at which amino acid is adsorbed in body.
38. Which of the following is an example of globular protein ?
 (1) Insulin (2) Keratin (3) Collagen (4) Fibroin of silk
39. The β -pleated sheet structure of a protein is an example of its
 (1) primary structure (2) secondary structure
 (3) tertiary structure (4) quaternary structure
40. The number of peptide bonds present in the pentapeptide leucine endorphin is
 (1) 2 (2) 3 (3) 4 (4) 5
41. Using leucine and alanine as only available amino acids to you in a sample, how many dipeptides can be prepared.
 (1) 1 (2) 2 (3) 3 (4) 4
42. What is true about phospholipids.
 (1) Phospholipids has phosphoric acid
 (2) Phospholipids are monosesters of phosphoric acid
 (3) Phospholipids are diesters of phosphoric acid
 (4) Phospholipids are triesters of phosphoric acids.
43. Number of H-bond between base pairs A and T and the base pair G and C are respectively.
 (1) 2 and 2 (2) 2 and 3 (3) 3 and 2 (4) 3 and 3
44. What is true about cellulose -

- (1) It has several thousand D-glucose units linked by 1 – 4. β -glycoside bond.
 (2) It has several thousand D-glucose units linked by 1-4. α -glycoside bond.
 (3) It has several thousand D-glucose units linked by 1-5. α -glycoside bond.
 (4) It has several thousand D-glucose units linked by 2-5. β -glycoside bond.
45. Bakelite is an example of
 (1) a homopolymer (2) a natural polymer
 (3) a condensation polymer (4) an addition polymer
46. The catalyst used for olefin polymerisation is
 (1) Ziegler-natta catalyst (2) Wilkinson catalyst
 (3) Lindlar catalyst (4) Adams catalyst
47. The monomer used to produce Orlon is
 (1) $\text{CH}_2=\text{CHF}$ (2) $\text{CH}_2=\text{CHCl}$ (3) $\text{CH}_2=\text{CHCN}$ (4) $\text{C}_6\text{H}_5\text{CH}=\text{CH}_2$
48. Which one among the following is a condensation polymer ?
 (1) Rubber (2) PVC (3) Orlon (4) Protein
49. The peptide
 $\text{Ala-Lys-Phe-Gly-Asp-Trp-Ser-Arg}$
 is allowed to undergo cleavage with the enzyme chymotrypsin(excess). The products obtained are
 (1) Ala-Lys-Phe-Gly and Asp-Trp-Ser-Arg
 (2) Ala-Lys-Phe , Gly-Asp-Trp and Ser-Arg
 (3) Ala-Lys-Phe , $\text{Gly-Asp-Trp-Ser-Arg}$
 (4) $\text{Ala-Lys-Phe-Gly-Asp-Trp}$ and Ser-Arg
50. Among the following amino acids which one has the highest pI value ?
 (1) Alanine (2) Glutamic acid (3) Lysine (4) Glycine
51. Which of the following amino acids have the lowest pI value
 (1) Asparagine (2) Aspartic acid (3) Arginine (4) Phenylalanine
52. α -Amino acids undergo internal acid-base reaction to form
 (1) a peptide (2) a zwitterion (3) a lactam (4) an amide

Exercise-3

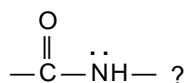
PART - I : NEET / AIPMT QUESTION (PREVIOUS YEARS)

1. Which one of the following is not correctly matched ? [AIPMT-2001]
- (1) Neoprene $\left[\text{CH}_2 - \underset{\text{Cl}}{\text{C}} = \text{CH} - \text{CH}_2 \right]_n$
- (2) Nylon -6,6 $\left[\text{NH} - (\text{CH}_2)_6 - \text{NH} - \text{CO} - (\text{CH}_2)_4 - \overset{\text{O}}{\parallel} \text{C} - \text{O} - \text{O} \right]_n$
- (3) Terylene $\left[\text{O} - \text{CH}_2 - \text{CH}_2 - \overset{\text{O}}{\parallel} \text{C} - \text{C}_6\text{H}_4 - \overset{\text{O}}{\parallel} \text{C} \right]_n$
- (4) PMMA $\left[\text{CH}_2 - \underset{\text{COOCH}_3}{\overset{\text{CH}_3}{\text{C}}} \right]_n$
2. Which of the following is correct about H-bonding in nucleotide ? [AIPMT-2001]
 (1) A-T, G-C (2) A-G, T-C (3) G-T, A-C (4) A-A, T-T
3. Which of the following is correct statement ? [AIPMT-2001]

- (1) Starch is a polymer of α -glucose
- (2) Amylose is a component of cellulose
- (3) Proteins are composed of only one type of amino acid
- (4) In cyclic structure of fructose, there are four carbons and one oxygen atom

4. Which statement is incorrect about peptide bond

[AIPMT-2001]



- (1) C—N bond length in proteins is longer than usual bond length of C—N bond
- (2) Spectroscopic analysis show planar structure of $\begin{array}{c} \text{O} \\ \parallel \\ -\text{C}-\text{NH}- \end{array}$ group
- (3) C—N bond length in proteins is smaller than usual bond length of C—N bond
- (4) None of the above

5. Monomer of $\left[\begin{array}{c} \text{CH}_3 \\ | \\ -\text{C}-\text{CH}_2- \\ | \\ \text{CH}_3 \end{array} \right]_n$ is :

[AIPMT-2002]

- (1) 2-methyl propene
- (2) styrene
- (3) propylene
- (4) ethene

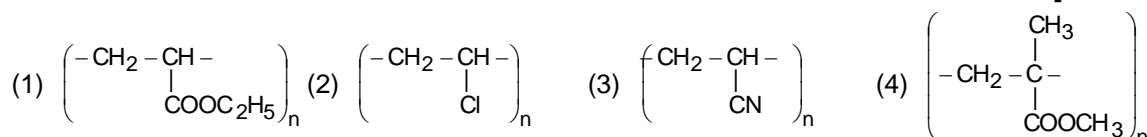
6. Cellulose is a polymer of

[AIPMT-2002]

- (1) glucose
- (2) fructose
- (3) ribose
- (4) sucrose

7. Acrolin is a hard, horny and a high melting material. Which of the following represents its structure ?

[AIPMT-2003]



8. Which one of the following monomers gives the polymer neoprene on polymerization? [AIPMT-2003]

- (1) $\begin{array}{c} \text{Cl} \\ | \\ \text{CH}_2=\text{C}=\text{CH}_2 \end{array}$
- (2) $\text{CF}_2=\text{CF}_2$
- (3) $\text{CH}_2=\text{CHCl}$
- (4) $\text{CCl}_2=\text{CCl}_2$

9. Phospholipids are esters of glycerol with

[AIPMT-2003]

- (1) one carboxylic acid residue and two phosphate group
- (2) three phosphate groups
- (3) three carboxylic acid residues
- (4) two carboxylic acid residues and one phosphate groups

10. Glycolysis is :

[AIPMT-2003]

- (1) oxidation of glucose to pyruvate
- (2) conversion of glucose to haem
- (3) oxidation of glucose to glutamate
- (4) conversion of pyruvate to citrate

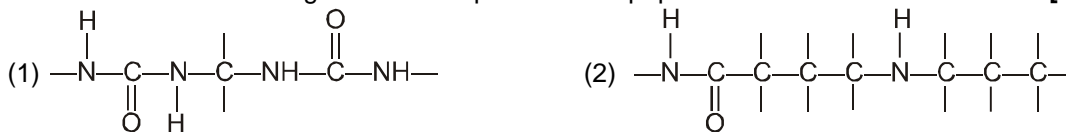
11. Which one of the following is a chain growth polymer ?

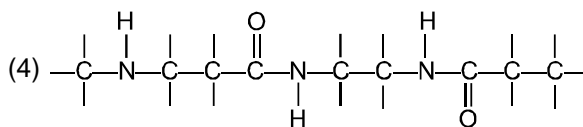
[AIPMT 2004]

- (1) Starch
- (2) Nucleic acid
- (3) Polystyrene
- (4) Protein

12. Which one of the following structures represents the peptide chain ?

[AIPMT-2004]



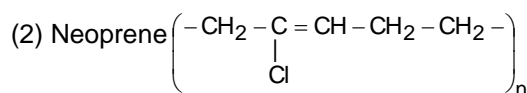


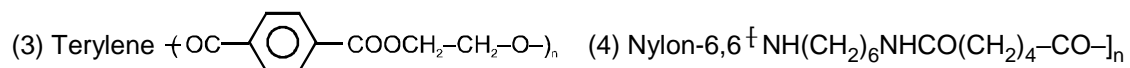
13. The correct statement in respect of protein haemoglobin is that it [AIPMT-2004]
 (1) functions as a catalyst for biological reactions
 (2) maintains blood sugar level
 (3) act as an oxygen carrier in the blood
 (4) forms antibodies and offers resistance to diseases
14. Number of chiral carbon atoms in β D (+) glucose is [AIPMT-2004]
 (1) five (2) six (3) three (4) four
15. The helical structure of protein is stabilised by : [AIPMT-2004]
 (1) dipeptide bonds (2) hydrogen bonds (3) ether bonds (4) peptide bonds
16. The enzyme which hydrolysis triglycerides to fatty acids and glycerol is called : [AIPMT-2004]
 (1) maltase (2) lipase (3) zymase (4) pepsin
17. The monomer of the polymer [AIPMT-2005]

$$\begin{array}{c} \text{CH}_3 \\ | \\ \sim\text{CH}_2-\text{C}-\text{CH}_2-\text{C}^{\oplus} \begin{array}{l} \diagup \text{CH}_3 \\ \diagdown \text{CH}_3 \end{array} \\ | \\ \text{CH}_3 \end{array}$$
 is
 (1) $\text{H}_2\text{C} = \text{C} \begin{array}{l} \diagup \text{CH}_3 \\ \diagdown \text{CH}_3 \end{array}$ (2) $(\text{CH}_3)_2\text{C} = \text{C}(\text{CH}_3)_2$ (3) $\text{CH}_3\text{CH} = \text{CH}.\text{CH}_3$ (4) $\text{CH}_3\text{CH}=\text{CH}_2$
18. Which functional group participates in disulphide bond formation in proteins ? [AIPMT-2005]
 (1) Thiolactone (2) Thiol (3) Thioether (4) Thioester
19. During the process of digestion, the proteins present in food materials are hydrolysed to amino acids. The two enzymes involved in the process [AIPMT-2006]

$$\text{Proteins} \xrightarrow{\text{Enzyme (A)}} \text{Polypeptides} \xrightarrow{\text{Enzyme (B)}} \text{Amino acids, are respectively}$$

 (1) amylase and maltase (2) diastase and lipase
 (3) pepsin and trypsin (4) invertase and zymase
20. $\left[\text{NH}(\text{CH}_2)_6\text{NHCO}(\text{CH}_2)_4\text{CO} \right]_n$ is a : [AIPMT-2006]
 (1) thermosetting polymer (2) homopolymer
 (3) copolymer (4) addition polymer
21. Which one of the following polymers is prepared by condensation polymerization ? [AIPMT-2007]
 (1) Rubber (2) Styrene (3) Nylon-6, 6 (4) Teflon
22. Which one of the following statements is not true ? [AIPMT-2008]
 (1) In vulcanisation, the formation of sulphur bridges between different chains make rubber harder and stronger
 (2) Natural rubber has the trans-configuration at every double bond
 (3) Buna-S is a copolymer of butadiene and styrene
 (4) Natural rubber is a 1,4-polymer of isoprene
23. Structures of some common polymers are given. Which one is not correctly presented ? [AIPMT-2009]





24. Which one of the following does not exhibit the phenomenon of mutarotation? [AIPMT-2010]
 (1) (+) Sucrose (2) (+) Lactose (3) (+) Maltose (4) (-) Fructose

25. Which of the statements about "Denaturation" given below are correct ? [AIPMT-2011]

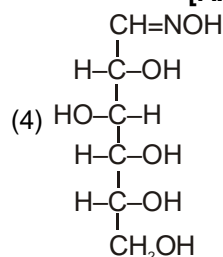
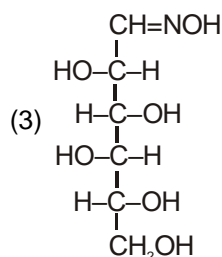
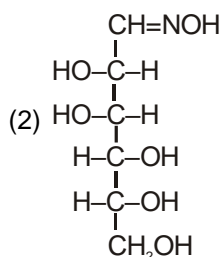
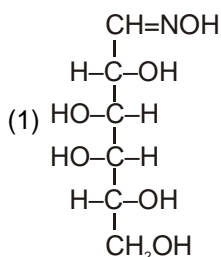
Statements

- (1) Denaturation of proteins causes loss of secondary and tertiary structures of the protein.
 (2) Denaturation leads to the conversion of double strand of DNA into single strand
 (3) Denaturation affects primary structure which gets distorted

Options :

- (1) (2) and (3) (2) (1) and (3) (3) (1) and (2) (4) (1), (2) and (3)

26. Which one of the following statements is not true regarding (+) Lactose ? [AIPMT-2011]
 (1) On hydrolysis (+) Lactose gives equal amount of D(+) glucose and D(+) galactose.
 (2) (+) Lactose is a β -glycoside formed by the union of a molecule of D(+) glucose and a molecule of D(+) galactose.
 (3) (+) Lactose is a reducing sugar and does not exhibit mutarotation.
 (4) (+) Lactose, $C_{12}H_{22}O_{11}$ contains 8-OH groups.
27. Which one of the following, statements is incorrect about enzyme catalysis ? [AIPMT-2012]
 (1) Enzymes are mostly proteinous in nature
 (2) Enzyme action is specific
 (3) Enzymes are denaturated by ultraviolet rays and at high temperature
 (4) Enzymes are least reactive at optimum temperature
28. Which one of the following sets of monosaccharides forms sucrose ? [AIPMT-2012]
 (1) α -D-Galactopyranose and α -D-Glucopyranose
 (2) α -D-Glucopyranose and β -D-fructofuranose
 (3) β -D-Glucopyranose and α -D-fructofuranose
 (4) α -D-Glucopyranose and β -D-fructopyranose
29. Which one of the following is not a condensation polymer ? [AIPMT-2012]
 (1) Melamine (2) Glyptal (3) Dacron (4) Neoprene
30. Which of the following statements is false ? [AIPMT-2012]
 (1) Artificial silk is derived from cellulose. (2) Nylon-66 is an example of elastomer.
 (3) The repeat unit in natural rubber is isoprene. (4) Both starch and cellulose are polymers of glucose.
31. Which one of the following sets forms the biodegradable polymer? [AIPMT-2012]
 (1) $CH_2=CH-CN$ and $CH_2=CH-CH=CH_2$ (2) H_2N-CH_2-COOH and $H_2N-(CH_2)_5-COOH$
 (3) $HO-CH_2-CH_2-OH$ and $HOOC-\text{C}_6\text{H}_4-COOH$ (4) $\text{C}_6\text{H}_5-CH=CH_2$ and $CH_2=CH-CH=CH_2$
32. Which is the monomer of Neoprene in the following ? [NEET -2013]
 (1) $CH_2=C(\text{CH}_3)-CH=CH_2$ (2) $CH_2=C(\text{Cl})-CH=CH_2$
 (3) $CH_2=CH-C\equiv CH$ (4) $CH_2=CH-CH=CH_2$
33. Nylon is an example of : [NEET -2013]
 (1) Polysaccharide (2) Polyamide (3) Polythene (4) Polyester
34. D(+) glucose reacts with hydroxyl amine and yield an oxime. The structure of the oxime would be : [AIPMT -2014]



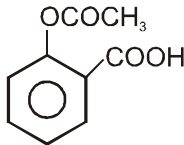
35. Which one of the following is an example of a thermosetting polymer? [AIPMT -2014]
 (1) $\text{-(CH}_2\text{-C(CH}_3\text{)=CH-CH}_2\text{)-}_n$
 (2) $\text{-(CH}_2\text{-CH(CH}_3\text{)-CH}_2\text{)-}_n$
 (3) $\text{-(NH-(CH}_2\text{)}_6\text{-NH-CO-(CH}_2\text{)}_4\text{-CO)-}_n$
 (4) $\text{-(C}_6\text{H}_4\text{)-}_n$
36. Which of the following organic compounds polymerizes to form the polyester Dacron? [AIPMT -2014]
 (1) Propylene and paraHO – (C₆H₄) – OH
 (2) Benzoic acid and ethanol
 (3) Terephthalic acid and ethylene glycol
 (4) Benzoic acid and para HO – (C₆H₄) – OH
37. Biodegradable polymer which can be produced from glycine and aminocaproic acid is : [AIPMT -2015]
 (1) PHBV (2) Buna-N (3) Nylon 6, 6 (4) Nylon 2-nylon 6
38. Caprolactum is used for the manufacture of : [RE-AIPMT -2015]
 (1) Nylon - 6 (2) Teflon (3) Terylene (4) Nylon - 6,6
39. In a protein molecule various amino acids are linked together by : [NEET-1 -2016]
 (1) dative bond (2) α-glycosidic bond (3) β-glycosidic bond (4) peptide bond
40. Which one given below is a non-reducing sugar ? [NEET-1 -2016]
 (1) Sucrose (2) Maltose (3) Lactose (4) Glucose
41. The correct statement regarding RNA and DNA, respectively is : [NEET-1 -2016]
 (1) The sugar component in RNA is 2'-deoxyribose and the sugar component in DNA is arabinose.
 (2) The sugar component in RNA is arabinose and the sugar component in DNA is 2'-deoxyribose.
 (3) The sugar component in RNA is ribose and the sugar component in DNA is 2'-deoxyribose.
 (4) The sugar component in RNA is arabinose and the sugar component in DNA is ribose.
42. Natural rubber has : [NEET-1 -2016]
 (1) Random cis – and trans–configuration
 (2) All cis–configuration
 (3) All trans–configuration
 (4) Alternate cis– and trans–configuration
43. Which one of the following structures represent nylon 6,6 polymer ? [NEET-2 -2016]
 (1) $\text{-(C(=O)-(CH}_2\text{)}_6\text{-C(=O)-NH-(CH}_2\text{)}_4\text{-NH)-}_n$
 (2) $\text{-(CH}_2\text{)}_6\text{-(CH}_2\text{)}_4\text{-(NH)}_2\text{-(CH}_2\text{)}_6\text{-(NH)}_2\text{-(CH}_2\text{)}_4\text{-(COOH)}_6$
 (3) $\text{-(CH}_2\text{)}_6\text{-(CH}_2\text{)}_4\text{-(NH)}_2\text{-(CH}_2\text{)}_6\text{-(NH)}_2\text{-(CH}_2\text{)}_4\text{-(COOH)}_6$
 (4) $\text{-(CH}_2\text{)}_6\text{-(CH}_2\text{)}_4\text{-(NH)}_2\text{-(CH}_2\text{)}_6\text{-(NH)}_2\text{-(CH}_2\text{)}_4\text{-(COOH)}_6$
44. The central dogma of molecular genetics states that the genetic information flows from [NEET-2 -2016]
 (1) DNA → RNA → Carbohydrates
 (2) Amino acids → Proteins → DNA
 (3) DNA → Carbohydrates → Proteins
 (4) DNA → RNA → Proteins

45. Which of the following statement is not correct ? [NEET-2017]
 (1) Insulin maintains sugar level in the blood of a human body.
 (2) Ovalbumin is a simple food reserve in egg white
 (3) Blood proteins thrombin and fibrinogen are involved in blood clotting.
 (4) Denaturation makes the proteins more active.
46. Which of the following compounds can form a zwitterions? [NEET-2018]
 (1) Aniline (2) Glycine (3) Benzoic acid (4) Acetanilide
47. Regarding cross-linked or network polymers, which of the following statements is incorrect ? [NEET-2018]
 (1) They contain covalent bonds between various linear polymer chains
 (2) They contain strong covalent bonds in their polymer chains.
 (3) Examples are bakelite and melamine.
 (4) They are formed from bi-and tri-functional monomers.
48. The biodegradable polymer is : [NEET-1-2019]
 (1) Buna-S (2) nylon-6, 6 (3) nylon 2-nylon 6 (4) nylon-6
49. Enzymes that utilize ATP in phosphate transfer require an alkaline earth metal (M) as the cofactor M is : [NEET-1-2019]
 (1) Sr (2) Be (3) Mg (4) Ca
50. The non-essential amino acid among the following is : [NEET-1-2019]
 (1) Lysine (2) Valine (3) Leucine (4) Alanine
51. The polymer that is used as a substitute for wool in making commercial fibers is - [NEET-2-2019]
 (1) melamine (2) nylon-6, 6 (3) Polyacrylonitrile (4) Buna - N
52. Which structure(s) of proteins remains(s) intact during denaturation process ? [NEET-2-2019]
 (1) Both secondary and tertiary structures (2) Primary structure only
 (3) Secondary structure only (4) Tertiary structure only

PART - II : AIIMS QUESTION (PREVIOUS YEARS)

1. Which substance chars when heated with conc. H_2SO_4 ? [AIIMS-2001]
 (1) Carbohydrate (2) Hydrocarbon (3) Fat (4) Protein
2. Zwitter ion contains : [AIIMS 2001]
 (1) -ve charge (2) +ve charge
 (3) both +ve and -ve charge (4) none of the above
3. Sucrose on treatment with conc. HCl produce : [AIIMS 2001]
 (1) glucose (2) fructose (3) glucose + fructose (4) laevulinic acid
4. The monomer of teflon is : [AIIMS 2002]
 (1) Tetra chloroethylene (2) Tetra bromoethylene
 (3) Tetra iodoethylene (4) Tetra fluoroethylene
5. **Assertion** : Glycosides are hydrolyzed in acidic conditions. [AIIMS 2003]
Reason : Glycosides are acetals.
 (1) If both assertion and reason are true and reason is a correct explanation of assertion.
 (2) If both assertion and reason are true but reason is not a correct explanation of assertion.
 (3) If assertion is true but reason is false.
 (4) If both assertion and reason are false.
 (5) If assertion is false but reason is true.

6. **Assertion** : Activity of an enzyme is pH-dependent. [AIIMS 2003]
Reason : Change in pH affects the solubility of the enzyme in water.
 (1) If both assertion and reason are true and reason is a correct explanation of assertion.
 (2) If both assertion and reason are true but reason is not a correct explanation of assertion.
 (3) If assertion is true but reason is false.
 (4) If both assertion and reason are false.
 (5) If assertion is false but reason is true.
7. Which of the following is a biodegradable polymer? [AIIMS 2004]
 (1) Cellulose (2) Polythene (3) Polyvinyl chloride (4) Nylon-6
8. **Assertion** : Carboxypeptidase is an exopeptidase. [AIIMS 2004]
Reason : It cleaves the N-terminal bond.
 (1) If both assertion and reason are true and reason is a correct explanation of assertion.
 (2) If both assertion and reason are true but reason is not a correct explanation of assertion.
 (3) If assertion is true but reason is false.
 (4) If both assertion and reason are false.
 (5) If assertion is false but reason is true.
9. Which one of the following statements is true for protein synthesis (translation) ? [AIIMS-2005]
 (1) Amino acids are directly recognize by m-RNA
 (2) The third base of the codon is less specific.
 (3) Only one codon codes for an amino acid.
 (4) Every t-RNA molecule has more than one amino acid attachment.
10. Lysine is least soluble in water in the pH range : [AIIMS-2006]
 (1) 3 to 4 (2) 5 to 6 (3) 6 to 7 (4) 8 to 9
11. Among the following L-serine is : [AIIMS 2006]
 (1) $\text{H}_2\text{N}-\overset{\text{CO}_2\text{H}}{\underset{\text{H}}{\text{C}}}-\text{CH}_2\text{OH}$ (2) $\text{HOH}_2\text{C}-\overset{\text{CO}_2\text{H}}{\underset{\text{NH}_2}{\text{C}}}-\text{H}$ (3) $\text{H}-\overset{\text{NH}_2}{\underset{\text{CH}_2\text{OH}}{\text{C}}}-\text{CO}_2\text{H}$ (4) $\text{H}_2\text{N}-\overset{\text{CH}_2\text{OH}}{\underset{\text{CO}_2\text{H}}{\text{C}}}-\text{H}$
12. Thymine is : [AIIMS 2006]
 (1) 5-methyluracil (2) 4-methyluracil (3) 3-methyluracil (4) 1-methyluracil
13. Methyl- α -D-glucoside and methyl- β -D-glucoside are : [AIIMS 2006]
 (1) epimers (2) anomers
 (3) enantiomers (4) conformational diastereomers
14. **Assertion** : 1,3-butadiene is the monomer for natural rubber. [AIIMS 2006]
Reason : Natural rubber is formed through anionic addition polymerization.
 (1) If both assertion and reason are true and reason is a correct explanation of assertion.
 (2) If both assertion and reason are true but reason is not a correct explanation of assertion.
 (3) If assertion is true but reason is false.
 (4) If both assertion and reason are false.
 (5) If assertion is false but reason is true.
15. Which of the following does not exist as a Zwitter ion? [AIIMS 2007]
 (1) Glycine (2) Glutamic acid (3) Sulphanilic acid (4) p-aminobenzoic acid
16. Plexiglass is a commercial name of : [AIIMS 2007]
 (1) Glyptal (2) polyacrylo nitrile

- (3) polymethyl methacrylate (4) polyethyl acrylate
17. Protein can be denatured by : [AIIMS 2007]
 (1) Carbon dioxide (2) Carbon monoxide (3) heat (4) oxygen
18. The compound  is used as : [AIIMS 2007]
 (1) Antiseptic (2) Antibiotic (3) Analgesic (4) Pesticides
19. Rayon is : [AIIMS 2007]
 (1) Natural silk (2) Artificial silk
 (3) Natural plastic or rubber (4) Synthetic plastic
20. Which of the following is a polymer containing nitrogen? [AIIMS 2008]
 (1) Polyvinyl chloride (2) Bakelite (3) Nylon (4) Terylene
21. The beta and alpha glucose have different specific rotations. When either is dissolved in water, their rotation changes until the some fixed value results. This is called : [AIIMS-2008]
 (1) epimerisation (2) racemisation (3) anomerisation (4) mutarotation
22. Select the incorrect statement, among the following : [AIIMS 2009]
 (1) Haemoglobin is soluble in water
 (2) α -keratin is soluble in water
 (3) Cellulose is a polymer of glucose
 (4) Chlorophyll is responsible for the synthesis of carbohydrates in plants
23. The monomers of buna-S-rubber are [AIIMS -2010]
 (1) vinyl chloride and sulphur (2) butadiene
 (3) styrene and butadiene (4) isoprene and butadiene
24. Carbohydrates which differ in configuration at the glycosidic carbon (ie, C_1 in aldose and C_2 in ketoses) are called. [AIIMS -2010]
 (1) anomers (2) epimers (3) diastereomers (4) enantiomers
25. Secondary structure of proteins refers to - [AIIMS -2010]
 (1) mainly denatured proteins and structure of prosthetic group
 (2) three dimensional structure, especially the bond between amino acid residue that are distant from each other in the polypeptide chain
 (3) linear sequence of amino acid residue in the polypeptide chain
 (4) regular folding patterns of continuous portions of the polypeptide chain
26. Find the hydrolysis product when a phosphodiester bond of nucleotide breaks. [AIIMS -2011]
 (1) 3-OH-deoxyribose-5- PO_4^{3-} (2) 5-OH-deoxyribose-3- PO_4^{3-}
 (3) 2-OH-deoxyribose-2- PO_4^{3-} (4) 4-OH-deoxyribose-2- PO_4^{3-}
27. Find the hydrolysis product of maltose. [AIIMS -2011]
 (1) α -D-glucose + α -D-glucose (2) α -D-glucose + α -D-fructose
 (3) α -D-glucose + α -D-galactose (4) α -D-fructose + α -D-galactose
28. Isoprene is [AIIMS -2011]
 (1) 3-Methyl-1,2-butadiene (2) 2-Methyl-1,3-butadiene
 (3) 3-Chloro-1,2-butadiene (4) 2-Chloro-1,3-butadiene
29. Teflon, polystyrene and neoprene are all [AIIMS -2012]

- (1) Copolymers (2) Condensation polymers
(3) Homopolymers (4) Monomers
30. Denaturation of proteins leads to loss of its biological activity by [AIIMS -2012]
(1) Formation of amino acids
(2) Loss of primary structure
(3) Loss of both primary and secondary structures
(4) Loss of both secondary and tertiary structures
31. Glucose molecule reacts with X number of molecules of phenylhydrazine to yield osazone. The value of X is [AIIMS -2013]
(1) three (2) two (3) one (4) four
32. Poly vinylalcohol can be prepared by [AIIMS -2013]
(1) Polymerization of vinyl alcohol
(2) alkaline hydrolysis of Polyvinyl acetate
(3) polymerization of acetylene
(4) reaction of acetylene with H_2SO_4 in presence of HgSO_4
33. Which compound/set of compounds is used in the manufacture of nylon-66? [AIIMS -2014]
(1) $\text{HOOC}(\text{CH}_2)_4\text{COOH} + \text{H}_2\text{N}(\text{CH}_2)_6\text{NH}_2$ (2) $\text{CH}_2 = \text{CH}-\text{C}(\text{CH}_3) = \text{CH}_2$
(3) $\text{CH}_2 = \text{CH}_2$ (4) $\text{HOOC}-\text{C}_6\text{H}_4-\text{COOH} + \text{HOCH}_2\text{CH}_2\text{OH}$
34. **Assertion :** Glucose and fructose give the same osazone. [AIIMS -2014]
Reason : During osazone formation stereochemistry only at C_1 and C_2 is destroyed.
(1) If both assertion and reason are true and reason is a correct explanation of assertion.
(2) If both assertion and reason are true but reason is not a correct explanation of assertion.
(3) If assertion is true but reason is false.
(4) If both assertion and reason are false.
(5) If assertion is false but reason is true.
35. The polymer used as packaging material in orthopaedic devices and for controlled dry release is [AIIMS -2016]
(1) Kevlar (2) PHBV (3) Glyptal (4) Bakelite
36. **Assertion :** Proteins, starch and rubber are lyophilic collides. [AIIMS -2016]
Reason : They have strong interaction with the dispersion medium.
(1) If both assertion and reason are true and reason is a correct explanation of assertion.
(2) If both assertion and reason are true but reason is not a correct explanation of assertion.
(3) If assertion is true but reason is false.
(4) If both assertion and reason are false.
(5) If assertion is false but reason is true.
37. Which of the following sets contain only addition polymers ? [AIIMS -2017]
(1) Polyethylene, polypropylene, terylene (2) Polyethylene, PVC, Teflon
(3) Buna-S, nylon, polybutadiene (4) Bakelite, PVC, polyethylene
38. Which is incorrect statement (Exact) [AIIMS -2018]
(1) Amyepectin is insoluble in water (2) Fructose is reducing sugar
(3) Cellulose is the polymer B-D-glucose (4) D-ribose sugar present in DNA
39. Match the following [AIIMS -2018]
(i) Biodegradable polymer (p) 3-Hydroxybutanoic acid

- (ii) Bakelite (q) phenol
 (iii) Neoprene (r) 2-chlorobuta-1,3-diene
 (iv) Glyptal (s) phthalic acid
 (1) i – p; ii – q; iii – r; iv – s
 (2) i – q; ii – p; iii – r; iv – s
 (3) i – p; ii – q; iii – s; iv – r
 (4) i – s; ii – r; iii – p; iv – q

40. **Assertion** : Tyrosine behave as a acidic at pH = 7 [AIIMS -2018]

Reason : pK_a of phenol is mole than 7.

- (1) If both assertion and reason are true and reason is the correct explanation of assertion.
 (2) If both assertion and reason are true but reason is not the correct explanation of assertion.
 (3) If assertion is true but reason is false.
 (4) If both assertion and reason are false.

41. **Assertion** : Bakelite is formed when novolac heat with formaldehyde which is thermosetting polymer

Reason : Bakelite is infusible solid mass

[AIIMS -2018]

- (1) If both assertion and reason are true and reason is the correct explanation of assertion.
 (2) If both assertion and reason are true but reason is not the correct explanation of assertion.
 (3) If assertion is true but reason is false.
 (4) If both assertion and reason are false.

42. **Assertion** : $Mg(CH_3)_2$ behave as a polymer

[AIIMS -2018]

Reason : CH_3 can form a very good bridge bond

- (1) If both assertion and reason are true and reason is the correct explanation of assertion.
 (2) If both assertion and reason are true but reason is not the correct explanation of assertion.
 (3) If assertion is true but reason is false.
 (4) If both assertion and reason are false.

43. Monomers of Natural Rubber and Neoprene are Respectively :

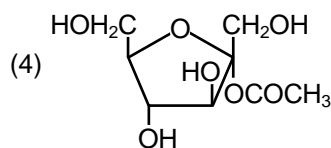
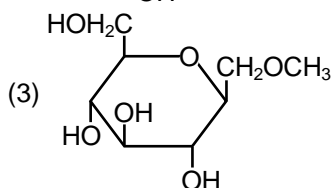
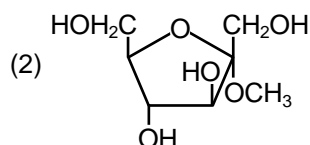
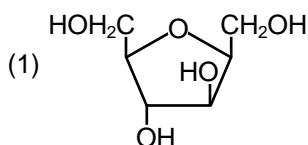
[AIIMS -2018]

- (1) $CH_3 - \underset{\substack{| \\ CH_3}}{C} = CH - CH_3$, $CH_3 - \underset{\substack{| \\ Cl}}{C} = CH - CH_3$
 (2) $CH_2 = \underset{\substack{| \\ CH_3}}{C} - CH = CH_2$, $CH_2 = \underset{\substack{| \\ Cl}}{C} - CH = CH_2$
 (3) $CH_2 = CH - CH = CH_2$, $CH_2 = CH - Cl$
 (4) $CH_2 = \underset{\substack{| \\ Cl}}{C} - CH = CH_2$, $CH_2 = \underset{\substack{| \\ CH_3}}{C} - CH = CH_2$

PART - III : JEE (MAIN) / AIEEE PROBLEMS (PREVIOUS YEARS)

1. A substance forms zwitter ion. It can have functional group. [AIEEE-2002]
 (1) $-NH_2$, $-COOH$ (2) $-NH_2$, $-SO_3H$ (3) Both (1) and (2) (4) None of these
2. Monomers are converted to polymers by [AIEEE-2002]
 (1) Hydrolysis of monomer (2) Condensation between monomers
 (3) Protonation of monomers (4) none
3. Complete hydrolysis of cellulose gives [AIEEE-2003]
 (1) D-fructose (2) D-ribose (3) D-glucose (4) L-glucose
4. Nylon threads are made up of [AIEEE-2003]
 (1) polyvinyl polymer (2) Polyester polymer (3) Polyamide polymer (4) Polyethylene polymer
5. Which of the following is a polyamide ? [AIEEE-2005]
 (1) Bakelite (2) Terylene (3) Nylon-6,6 (4) Teflon
6. Which of the following is fully fluorinated polymer [AIEEE-2005]
 (1) PVC (2) Thiocol (3) Teflon (4) Neoprene

7. The term anomers of glucose refers to [AIEEE-2006]
 (1) a mixture of (D)-glucose and (L)-glucose
 (2) enantiomers of glucose
 (3) isomers of glucose that differ in configuration at carbon one (C-1)
 (4) isomers of glucose that differ in configurations at carbons one and four (C-1 and C-4)
8. The secondary structure of protein refers to: [AIEEE-2007, 3/120]
 (1) α -helical backbone. (2) hydrophobic interactions.
 (3) sequence of α -amino acids. (4) fixed configuration of the polypeptide backbone.
9. Bakelite is obtained from phenol by reacting with [AIEEE-2008, 3/105]
 (1) CH_3CHO (2) CH_3COCH_3 (3) HCHO (4) $(\text{CH}_2\text{OH})_2$
10. Buna-N synthetic rubber is a copolymer of : [AIEEE-2009, 4/144]
 (1) $\text{H}_2\text{C}=\text{CH}-\text{CH}=\text{CH}_2$ and $\text{H}_5\text{C}_6-\text{CH}=\text{CH}_2$ (2) $\text{H}_2\text{C}=\text{CH}-\text{CN}$ and $\text{H}_2\text{C}=\text{CH}-\text{CH}=\text{CH}_2$
 (3) $\text{H}_2\text{C}=\text{CH}-\text{CN}$ and $\text{H}_2\text{C}=\text{CH}-\underset{\text{CH}_3}{\overset{\text{Cl}}{\text{C}}}=\text{CH}_2$ (4) $\text{H}_2\text{C}=\text{CH}-\underset{\text{CH}_3}{\overset{\text{Cl}}{\text{C}}}=\text{CH}_2$ and $\text{H}_2\text{C}=\text{CH}-\text{CH}=\text{CH}_2$
11. The two functional groups present in a typical carbohydrate are : [AIEEE-2009, 4/144]
 (1) $-\text{CHO}$ and $-\text{COOH}$ (2) $>\text{C}=\text{O}$ and $-\text{OH}$ (3) $-\text{OH}$ and $-\text{CHO}$ (4) $-\text{OH}$ and $-\text{COOH}$
12. The polymer containing strong intermolecular forces e.g. hydrogen bonding is [AIEEE-2010, 4/144]
 (1) teflon (2) nylon 6,6 (3) polystyrene (4) natural rubber
13. The presence or absence of hydroxy group on which carbon atom of sugar differentiates RNA and DNA. [AIEEE-2011]
 (1) 1st (2) 2nd (3) 3rd (4) 4th
14. Synthesis of each molecule of glucose in photosynthesis involves : [JEE (Mains)-2013, 4/120]
 (1) 18 molecules of ATP (2) 10 molecules of ATP
 (3) 8 molecules of ATP (4) 6 molecules of ATP
15. Which one is classified as a condensation polymer ? [JEE (Mains)-2014, 4/120]
 (1) Dacron (2) Neoprene (3) Teflon (4) Acrylonitrile
16. Which polymer is used in the manufacture of paints and lacquers ? [JEE (Mains)-2015, 4/120]
 (1) Bakelite (2) Glyptal (3) Polypropene (4) Poly vinyl chloride
17. Which of the vitamins given below is water soluble ? [JEE (Mains)-2015, 4/120]
 (1) Vitamin C (2) Vitamin D (3) Vitamin E (4) Vitamin K
18. Which of the following compounds is **not** an antacid ? [JEE (Mains)-2015, 4/120]
 (1) Aluminium hydroxide (2) Cimetidine
 (3) Phenelzine (4) Ranitidine
19. Thiol group is present in : [JEE (Mains)-2016, 4/120]
 (1) Cystine (2) Cysteine (3) Methionine (4) Cytosine
20. The formation of which of the following polymers involves hydrolysis reaction ? [JEE (Mains)-2017, 4/120]
 (1) Bakelite (2) Nylon 6,6 (3) Terylene (4) Nylon 6
21. Which of the following compounds will behave as a reducing sugar in an aqueous KOH solution? [JEE (Mains)-2017, 4/120]



22. Glucose on prolonged heating with HI gives :

(1) Hexanoic acid

(2) 6-iodohexanal

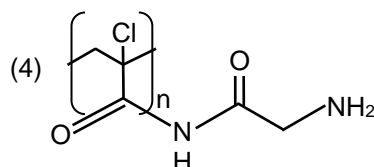
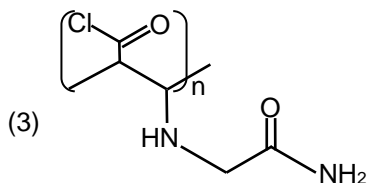
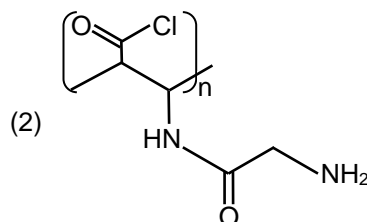
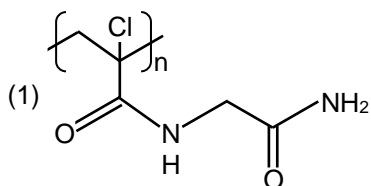
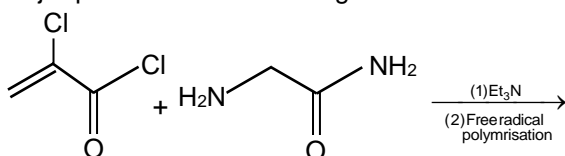
(3) n-Hexane

[JEE (Mains)-2018, 4/120]

(4) 1-Hexene

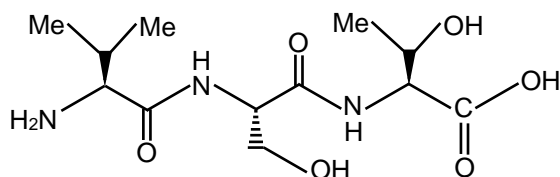
23. Major product of the following reaction is :

[JEE (Mains)-2019, 4/120]



24. The correct sequence of amino acids present in the tripeptide given below is :

[JEE (Mains)-2019, 4/120]



(1) Val - Ser - Thr

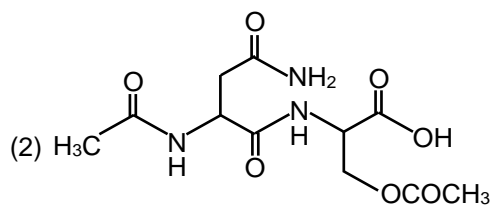
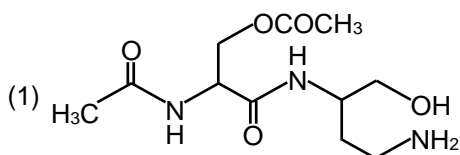
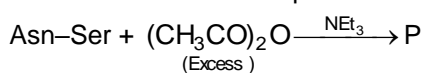
(2) Leu - Ser - Thr

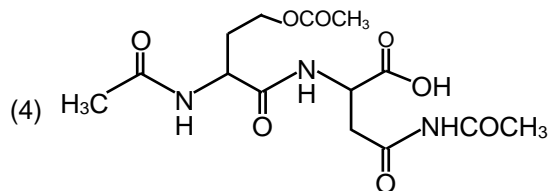
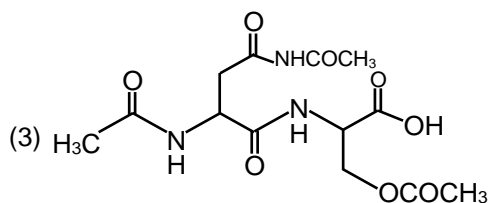
(3) Thr - Ser - Leu

(4) Thr - Ser - Val

25. The correct structure of product 'P' in the following reaction is :

[JEE (Mains)-2019, 4/120]



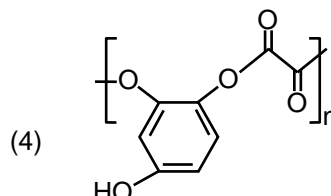
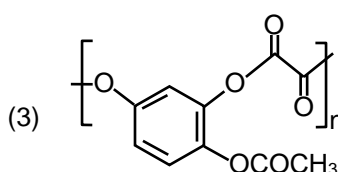
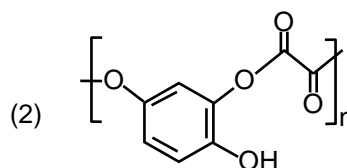
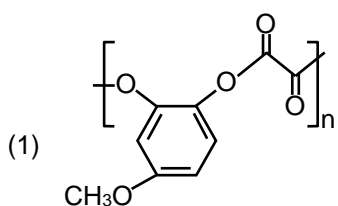
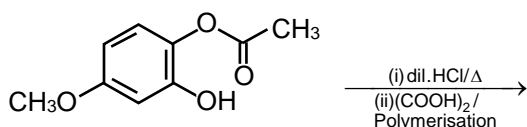


26. Which of the following tests cannot be used for identifying amino acids? [JEE (Mains)-2019, 4/120]

- (1) Biuret test (2) Barfoed test (3) Ninhydrin test (4) xanthoproteic test

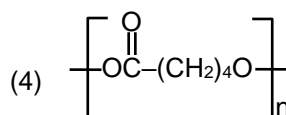
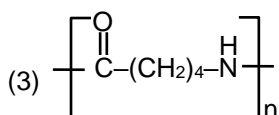
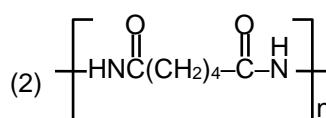
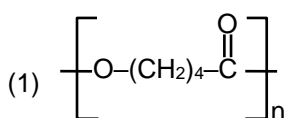
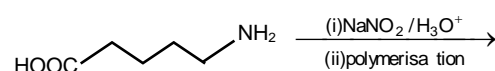
27. The major product of the following reaction is:

[JEE (Mains)-2019, 4/120]



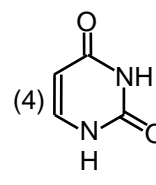
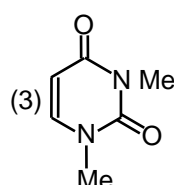
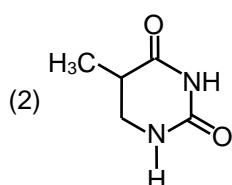
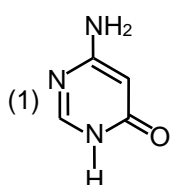
28. The polymer obtained from the following reactions is:

[JEE (Mains)-2019, 4/120]

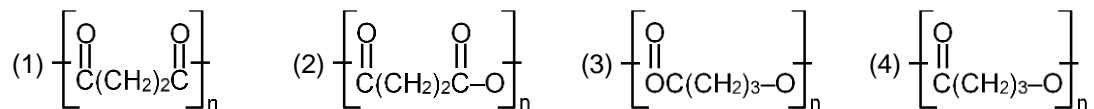


29. Among the following compounds, which one is found in RNA?

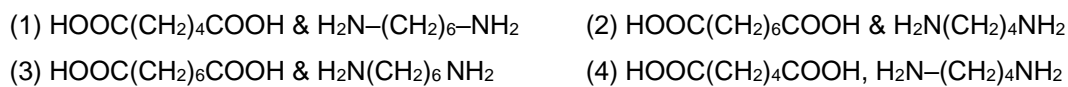
[JEE (Mains)-2019, 4/120]



30. The homopolymer formed from 4-hydroxy-butanoic acid is : [JEE (Mains)-2019, 4/120]



31. The two monomers for the synthesis of Nylon-6, 6 are: [JEE (Mains)-2019, 4/120]



Answers

EXERCISE - 1

SECTION (A)

1.	(3)	2.	(1)	3.	(4)	4.	(3)	5.	(1)	6.	(1)	7.	(4)
8.	(1)	9.	(4)	10.	(1)	11.	(4)	12.	(2)	13.	(4)	14.	(3)
15.	(1)	16.	(4)	17.	(2)	18.	(1)	19.	(3)	20.	(2)		

SECTION (B)

1.	(1)	2.	(1)	3.	(2)	4.	(1)	5.	(4)	6.	(1)	7.	(4)
8.	(3)	9.	(3)	10.	(3)	11.	(2)	12.	(1)	13.	(3)	14.	(3)
15.	(1)	16.	(3)	17.	(2)	18.	(3)						

SECTION (C)

1.	(1)	2.	(3)	3.	(1)	4.	(3)	5.	(1)	6.	(3)	7.	(4)
8.	(1)	9.	(3)	10.	(4)	11.	(2)	12.	(4)	13.	(4)	14.	(3)
15.	(4)	16.	(3)	17.	(1)	18.	(3)	19.	(4)	20.	(2)		

EXERCISE - 2

1.	(4)	2.	(4)	3.	(3)	4.	(2)	5.	(2)	6.	(3)	7.	(1)
8.	(3)	9.	(1)	10.	(2)	11.	(4)	12.	(3)	13.	(2)	14.	(4)
15.	(2)	16.	(4)	17.	(2)	18.	(2)	19.	(4)	20.	(1)	21.	(1)
22.	(1)	23.	(2)	24.	(4)	25.	(4)	26.	(3)	27.	(1)	28.	(2)
29.	(4)	30.	(4)	31.	(1)	32.	(1)	33.	(2)	34.	(4)	35.	(1)
36.	(1)	37.	(2)	38.	(1)	39.	(2)	40.	(3)	41.	(4)	42.	(3)
43.	(2)	44.	(1)	45.	(3)	46.	(3)	47.	(2)	48.	(3)	49.	(2)
50.	(3)	51.	(2)	52.	(2)								

EXERCISE - 3

PART-I

1.	(3)	2.	(1)	3.	(1)	4.	(3)	5.	(1)	6.	(1)	7.	(3)
8.	(1)	9.	(4)	10.	(1)	11.	(3)	12.	(3)	13.	(3)	14.	(1)
15.	(2)	16.	(2)	17.	(1)	18.	(2)	19.	(3)	20.	(3)	21.	(3)
22.	(2)	23.	(2)	24.	(1)	25.	(3)	26.	(3)	27.	(4)	28.	(2)
29.	(4)	30.	(2)	31.	(2)	32.	(2)	33.	(2)	34.	(4)	35.	(4)
36.	(3)	37.	(4)	38.	(1)	39.	(4)	40.	(1)	41.	(3)	42.	(2)
43.	(1)	44.	(4)	45.	(4)	46.	(2)	47.	(2)	48.	(3)	49.	(3)
50.	(4)	51.	(3)	52.	(2)								

PART-II

1.	(1)	2.	(3)	3.	(4)	4.	(4)	5.	(4)	6.	(2)	7.	(1)
8.	(3)	9.	(2)	10.	(4)	11.	(3)	12.	(1)	13.	(2)	14.	(4)
15.	(4)	16.	(3)	17.	(3)	18.	(3)	19.	(2)	20.	(3)	21.	(4)
22.	(2)	23.	(3)	24.	(1)	25.	(4)	26.	(1)	27.	(1)	28.	(2)
29.	(3)	30.	(4)	31.	(1)	32.	(2)	33.	(1)	34.	(1)	35.	(2)
36.	(1)	37.	(2)	38.	(4)	39.	(1)	40.	(1)	41.	(1)	42.	(4)
43.	(2)												

PART-III

1.	(3)	2.	(2)	3.	(3)	4.	(3)	5.	(3)	6.	(3)	7.	(3)
8.	(4)	9.	(3)	10.	(2)	11.	(3)	12.	(2)	13.	(2)	14.	(1)
15.	(1)	16.	(2)	17.	(1)	18.	(3)	19.	(2)	20.	(4)	21.	(4)
22.	(3)	23.	(1)	24.	(1)	25.	(2)	26.	(2)	27.	(1)	28.	(1)
29.	(4)	30.	(4)	31.	(1)								