1. Proteins are condensation polymers of

(a) α-Amino acids (b) β-Amino acids
(c) α-Hydroxy acids (d) β-Hydroxy acids.

2. Proteins are

(a) Polyamides (b) Polyesters
(c) Polyhydric alcohols (d) Polycarboxylic acids

3. The peptide bond is :

(a) $-CONH_2$ (b) – CONH –
(c) $-COONH_4$ (d) – N = C = O

4. Which of the following α-amino acids does not contain a chiral carbon ?

(a) Glycine (b) Alanine
(c) Phenylalanine (d) Valine.

5. In aqueous solution, amino acids mostly exist as :

(a) $NH_2 - CHR - COOH$ (b) $NH_2 - CHR - COO^-$
(c) $N_3\overset{+}{N} - CHR - COOH$ (d) $H_3\overset{+}{N} - CHR - COO^-$

6. Denaturation of proteins can be carried out by

(a) Heat (b) Mineral acids
(c) Bases (d) All three above

7. Cheese is a :

(a) Globular protein. (b) Cojugated protein.
(c) Denatured protein. (d) Derived protein.

8. Mark the wrong statement about denaturation of proteins :

(a) The primary structure of the protein does not change.
(b) Globular proteins are converted into fibrous proteins.
(c) Fibrous proteins are converted into globular proteins.
(d) The biological activity of the protein is destroyed.

9. The bond that determines the secondary structure of a protein is :

(a) Co-ordinate bond (b) Covalent bond
(c) Hydrogen bond (d) Ionic bond

10. Proteins are denatured in the

(a) Mouth (b) Stomach
(c) Small intestine (d) Large intestine

11. Which protein is main constituent of milk ?

(a) Casein (b) Insulin
(c) Myosine (d) Keratin

12. Which of the following proteins contains a transition metal ion ?

(a) α-Keratin (b) β-Keratin
(c) Myoglobin (d) Insulin

13. The Haemoglobin molecule contains

(a) two alpha- and two beta-polypeptide chains, and two haeme groups
(b) one alpha- and one beta-polypeptide chains, and two haeme groups
(c) two alpha- and two beta-polypeptide chains, and four haeme groups
(d) one alpha- and one beta-polypeptide chains, and one haeme groups

14. Which of the following amino acids possesses two chiral centres ?

(a) Threonine (b) Proline
(c) Phenylalanine (d) Serine

15. The two pK_a values of L-valine are 2.32 and 9.62. Its isoelectric point is :

(a) 7.0 (b) 11.94
(c) 5.97 (d) 9.62

16. The α-amino acid that possesses a primary alcohol group ($-CH_2OH$) is

(a) threonine (b) serine
(c) cysteine (d) tyrosine

17. In which of the following forms glutamic acid will exist in solution at pH 6.0 ?

(a) $HOOC(CH_2)_2\underset{\overset{|}{\overset{+}{NH_3}}}{CH}COO^-$ (b) $HOOC(CH_2)_2\underset{\overset{|}{\overset{+}{NH_3}}}{CH}COOH$

(c) $^-OOC(CH_2)_2\underset{\overset{|}{\overset{+}{NH_3}}}{CH}COO^-$ (d) $^-OOC(CH_2)_2\underset{\overset{|}{NH_2}}{CH}COO^-$

18. Proteins are built up of

(a) Dicarboxylic acids (b) Amino acids
(c) Alcohols (d) Hydroxy acids

19. Which one of the following proteins transports oxygen in the blood stream

(a) Myoglobin (b) Insulin

(c) Albumin (d) Haemoglobin

20. The end product of protein digestion is
(a) Amino acid (b) Glucose
(c) Glycerol (d) Oxalic acid

21. Out of the following the best category of proteins is
(a) Polyamides (b) Polythioethers
(c) Glycerides (d) Polysaccharides

22. Enzymes
(a) Accelerate biochemical reactions
(b) Have optimum activity at body temperature
(c) Consist of amino acids
(d) Have all these properties

23. Which one of the following is an example of a globular protein
(a) Keratin (b) Insulin
(c) Collagen (d) Myoglobin

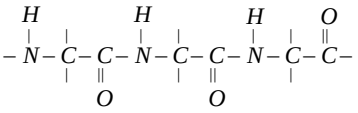
24. The decomposition of complex organic compounds into simpler compound with the help of enzyme is known as
(a) Catabolism (b) Anabolism
(c) Fermentation (d) Metabolism

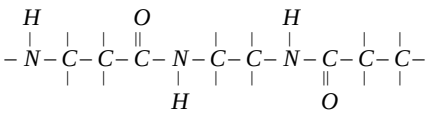
25. The test used for identifying peptide linkage in proteins is
(a) Borsche's test (b) Molisch's test
(c) Ninhydrin test (d) Biuret test

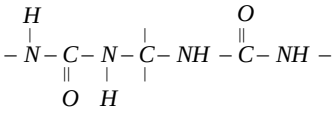
26. Excess of Na^+ ions in our system causes
(a) High B.P. (b) Low B.P.
(c) Diabetes (d) Anaemia

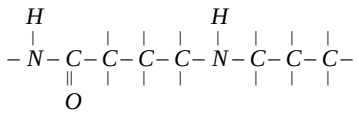
27. The process by which synthesis of protein takes place based on the genetic information present in *m*-RNA is called
(a) Translation (b) Transcription
(c) Replication (d) Messenger hypothesis

28. Which one of the following structures represents the peptide chain

(a) 

(b) 

(c) 

(d) 

29. A biological catalyst is essentially

(a) An enzyme
(b) A carbohydrate
(c) An amino acid
(d) A nitrogen compound

30. Which synthesis was done by Stainley Millar

(a) Amino acid (b) Protein
(c) Virus (d) Vitamin

1. (a)
2. (a)
3. (b)
4. (a) Structure of Glycine is $H_2N–CH_2–COOH$.

5. (d) Amino acids mostly exist in zwitter ion (dipolar ion) because acidic "H" of –COOH accept by the basic $\ddot{N}H_2$ group.

6. (d) Denaturation of proteins : Protein may be coagulated and precipitated from aqueous solution by heat, acids, alkali, salt, organic solvents miscible with H_2O. Ex. egg on heating and formation of paneer.
7. (c)
8. (c)
9. (c) The bond that determines the secondary structure of a protein is hydrogen bond.
10. (b) Proteins are denatured in the stomach.

11. (a)
12. (c) Myoglobin contains iron as a transition metal ion as in Fe^{2+} form.

13. (c) Factual ¼r
14. (a)
15. (c) PI = $\frac{2.32+9.62}{2}=5.97$

16. (b) Factual

17. (c) PI = 5.65 so. it exits
18. (b)Proteins are polymers of amino acids.

Amino acid $\rightarrow$ Dipeptide $\rightarrow$ Polypeptide $\rightarrow$ Protein.

19. Your Self

20. Your Self

21. Your Self

22. Your Self

23. Your Self

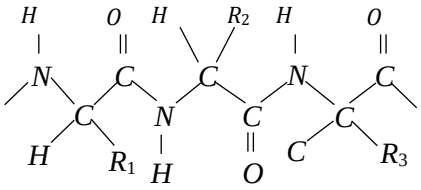
24. Your Self

25. Your Self

26. (a) Na^+ and K^+ controls blood pressure and heart beat so excess of Na^+ ion increases B.P.

27. (a) Synthesis of polypeptide known as translation. For this process three type of RNA essential.

28. (a) In peptide linkage *i.e.*, *–CONH –* group, the carboxyl group of one amino acid molecules forms an amide by combination with the amino group of the next amino acid molecule with the liberation of water molecule.



29. (a) An enzyme (protein) is a biological catalyst.

30. (a)Amino acid synthesis was done by stainley millar.