1. Amino acids are

a) building blocks of carbohydrates
b) building blocks of nucleic acids
c) building blocks of lipids
d) building blocks of proteins

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2. Amino acids has :
a) both amino group and carboxyl group
b) both amino group and keto group
c) amino group only
d) carboxyl group only

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3. The simplest amino acid is

a) Proline
b) methionine
c) glycine
d) serine

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4. Which of the following is an α imino acid
a) serene
b) threonine
c) valine
d) proline

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5. The naturally occurring form of amino acid in proteins
a) L-amino acids only
b) D-amino acids only
c) both L and D amino acids
d) none of these

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6. Sulphur containing amino acids are
a) Cysteine and methionine
b) Methionine and threonine
c) Cysteine and threonine
d) Cysteine and serine

7. Aromatic amino acids include
a) Phenylalanine, tyrosine and tryptophan
b) Phenylalanine, serine and tryptophan
c) Threonine, tyrosine and tryptophan
d) Asparagine, tyrosine and tryptophan

8. Positively charged basic amino acids are
a) Lysine and arginine
b) Lysine and asparagine
c) Glutamine and arginine
d) Lysine and glutamine

9. Amino acids with hydroxyl groups are
a) serine and alanine
b) Alanine and valine
c) serine and threonine
d) Valine and isoleucine

10.The chirality of an amino acid results from the fact that its a carbon: Amino acid general structure
a) has no net charge.
b) is a carboxylic acid.
c) is bonded to four different chemical groups.
d) is in the l absolute configuration in naturally occurring proteins.
e) is symmetric.

11. Of the 20 standard amino acids, only ----- is not optically active. The reason is that its side chain -----.
a) alanine; is a simple methyl group
b) glycine; is a hydrogen atom
c) glycine; is unbranched
d) lysine; contains only nitrogen

e) proline; forms a covalent bond with the amino group

12. Two amino acids of the standard 20 contain sulfur atoms. They are:
a) cysteine and serine.
b) cysteine and threonine.
c) methionine and cysteine
d) methionine and serine
e) threonine and serine.

13. All of the amino acids that are found in proteins, except for proline, contain a(n):
a) amino group.
b) carbonyl group.
c) carboxyl group.
d) ester group.
e) thiol group.

14. Which of the following statements about aromatic amino acids is correct?

a) All are strongly hydrophilic.
b) Histidine's ring structure results in its being categorized as aromatic or basic, depending on pH.
c) On a molar basis, tryptophan absorbs more ultraviolet light than tyrosine.
d) The major contribution to the characteristic absorption of light at 280 nm by proteins is the phenylalanine R group.
e) The presence of a ring structure in its R group determines whether or not an amino acid is aromatic.

15. Which of the following statements about cystine is correct?

a) Cystine forms when the —CH2—SH R group is oxidized to form a —CH2—S—S—CH2— disulfide bridge between two cysteines.
b) Cystine is an example of a nonstandard amino acid, derived by linking two standard amino acids.

c) Cystine is formed by the oxidation of the carboxylic acid group on cysteine.
d) Cystine is formed through a peptide linkage between two cysteines.
e) Two cystines are released when a —CH2—S—S—CH2— disulfide bridge is reduced to —CH2—SH.

16.In a highly basic solution, pH = 13, the dominant form of glycine is:
a) NH2—CH2—COOH.
b) NH2—CH2—COO-.
c) NH2—CH3+—COO-.
d) NH3+—CH2—COOH.
e) NH3+—CH2—COO-.

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17. For amino acids with neutral R groups, at any pH below the pI of the amino acid, the population of amino acids in solution will have:
a) a net negative charge.
b) a net positive charge.
c) no charged groups.
d) no net charge.
e) positive and negative charges in equal concentration.

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18. Which of the following is amino acid has indole ring in its side chain
A. Phenyl alanine
B. Tyrosine
C. Histidine
D. tryptophan

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19. Amino acids with hydroxyl OH group include
A. serine
B. threonine
C. tyrosine
D. all of these

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20. Which of the following amino acid has amide group in its side chain
A. Cysteine
B. lysine

C. glutamine
D. isoleucine

21. Amino acid that have basic side chain at neutral pH is

A. arginine
B. lysine
C. histidine
D. all of above

22. Cystine is made up of :

A. four molecules of cysteine
B. three molecules of cysteine
C. two molecules of cysteine
D. five molecules of cysteine

23- Sulfur atom of cysteine is involved in formation of:

A. sulfide group
B. sulfhydryl group
C. sulfite group
D. none of above

24- At pH = 1, amino acid exists as:

A. anion
B. cation
C. zwitterion
D. both A and C

25- Which of the following amino acids has a net negative charge at physiologic pH (~7.4)?

Please choose from one of the following options.

A. Lysine
B. Glutamic Acid
C. Asparagine
D. Histidine

26- At pH equal to pK_a amino acid solution exists as

A. cationic form
B. anionic form
C. zwitterionic form
D. both A and C

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27 Acidic amino acids include

a) Arginine and glutamate
b) Aspartate and asparagine
c) Aspartate and lysine
d) Aspartate and glutamate

28- Tryptophan side chain , choose the wrong statement :

a- Has two fused rings
b- Can form hydrogen bonds because of NH group
c- Can form hydrogen bonds with phenylalanine side chain
e- Is an essential amino acid

29- The amino acids general structure , choose the correct statement :

a- At acidic pH the carboxylic acid is negative charged and a-amino group is positively charged
b- At acidic pH the carboxylic acid is neutral and a-amino group is positively charge
c- At pH 7 the carboxylic acid group is negatively charged and a-amino group is neutral
d- At basic pH the carboxylic acid group is neutral and a-amino group is positively charge
e- At basic pH the carboxylic acid group is negatively charged and a-amino group is positively charged

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30- All of of the following belong to polar uncharged R group amino acids except

a- S
b- T
c- C
d- N
e- G

31- Disulfide bond , choose the wrong statement :

a- The strength of fibrous protein is enhanced by disulfide bonds
b- Disulfide bonds formed by the reduction of a pair of cysteine residues
c- Two cysteines linked by disulfide bond is called cystine
d- Disulfide bonds are found in some toxins and in hormones like insulin
e- In a-Keratins , the cross – linked stabilizing quaternary structure are disulfide bonds

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32- Which of the following statements about solutions of amino acids at physiologic

a- All amino acids contain both positive and negative charges
b- All amino acids contain positively charged side chains
c- Some amino acids contain only positive charges
d- All amino acids contain negatively charged side chains
e- Some amino acids contain only negative charges

33- The modified amino acid that can be found in collagen is :

a- 3-hydroxylysine
b- 5-hydroxyproline
c- 4-hydroxyproline
d- 3-Hydroxyalanine
e- 2-Hydroxyproline

34- At pH of 7, ionic bond would most likely form between the R-groups of :

a- Valine and alanine

b- Histidine and lysine
c- Aspartate and arginine
d- Arginine and lysine
e- Histidine and tyrosine

35- Which R-group of the following is most likely to form hydrogen bonds in aqueous solution ?
a- Proline
b- Phenylalanine
c- Serine
d- Isoleucine
e- Valine

36. An aromatic amino acid is
(A) Lysine
(B) Tyrosine
(C) Taurine
(D) Arginine

37.The true statement about solutions of amino acids at physiological pH is
(A) All amino acids contain both positive and negative charges
(B) All amino acids contain positively charged side chains
(C) Some amino acids contain only positive charge
(D) All amino acids contain negatively charged side chains

38. Sulphur containing amino acid is
(A) Methionine
(B) Leucine
(C) Valine
D) Asparagine

39. An example of sulphur containing amino acid is
(A) 2-Amino-3-mercaptopropanoic acid
(B) 2-Amino-3-methylbutanoic acid

(C) 2-Amino-3-hydroxypropanoic acid
(D) Amino acetic acid

40. All the following are sulphur containing amino acids found in proteins except
(A) Cysteine
(B) Cystine
(C) Methionine
(D) Threonine