Multiple Choice Questions- Amino acid and protein chemistry

1- A mutation has changed an isoleucine residue of a protein to Glutamic acid, which statement best describes its location in a hydrophilic exterior-

a) On the surface since it is hydrophilic in nature
b) Inside the core of the protein since it is hydrophobic in nature
c) Anywhere inside or outside
d) Inside the core of protein since it has a polar but uncharged side chain

2- Glycine and proline are the most abundant amino acids in the structure of-

a) Hemoglobin
b) Myoglobin
c) Insulin
d) Collagen

3- Some proteins contain additional amino acids that arise by modification of an amino acid already present in a peptide, examples include-

a) 4-hydroxy proline
b) 5-hydroxy Lysine
c) Gamma Amino Butyric Acid
d) All of the above

4- Choose the incorrect statement out of the followings-

a) Only L amino acids are found in the biological system
b) Glycine is optical inactive
c) Tyrosine is a modified amino acid

d) Seleno cysteine is 21st amino acid

5- Choose a nano peptide out of the followings-

a) Oxytocin

b) Vasopressin

c) Bradykinin

d) All of the above

6- Which out of the following amino acids carries a net positive charge at the physiological pH?

a) Valine

b) Leucine

c) Isoleucine

d) None of the followings

7- Which out of the following amino acids is a precursor for a mediator of allergies and inflammation?

a) Histidine

b) Tyrosine

c) Phenyl Alanine

d) Tryptophan

8- Mother of a malnourished child has been instructed to include a complete protein in diet for her child, which out of the followings proteins should be recommended?
9- All of the below mentioned amino acids can participate in hydrogen bonding except one
a) Serine
b) Cysteine
c) Threonine
d) Valine

10- All of the following amino acids are both glucogenic as well as ketogenic except
a) Isoleucine
b) Leucine
c) Tyrosine
d) Phenyl alanine

11- Which out of the following amino acid is a precursor of niacin (Vitamin)?
 a) Tyrosine
 b) Threonine
 c) Tryptophan
 d) Phenylalanine
12- The greatest buffering capacity at physiological pH would be provided by a protein rich in which of the following amino acids?

a) Serine  
b) Cysteine  
c) Alanine  
d) Histidine

13- Which of the following peptides is cyclic in nature?

a) Glutathione  
b) Gramicidin  
c) Met encephalin  
d) Leuencephalin

14- Which out of the followings is not a fibrous protein?

a) Carbonic anhydrase  
b) Collagen  
c) Fibrinogen  
d) Keratin

15) Which of the following amino acid is a limiting amino acid in pulses?

a) Leucine  
b) Lysine  
c) Methionine  
d) Glutamine
16) Which out of the following is not a haemo protein?

a) Catalase
b) Myeloperoxidase
c) Glutathione peroxidase
d) Aconitase

17- All the below mentioned proteins are metalloproteins except-

a) Carbonic anhydrase
b) Xanthine oxidase
c) Lactate dehydrogenase
d) Superoxide dismutase

18- Which out of the following is a peptide antibiotic?

a) Erythromycin
b) Gramicidin
c) Ciprofloxacin
d) Tetracycline

19- Choose the Anticancer peptide out of the followings-

a) Bleomycin
b) Methotrexate
c) Cytosine Arabinoside
20- Which of the following amino acids is most compatible with an α-helical structure?

a) Tryptophan
b) Alanine
c) Leucine
d) Proline

21- The highest concentration of cystine can be found in-

a) Melanin
b) Keratin
c) Collagen
d) Myosin

22- In scurvy, which amino acid that is normally part of collagen is not synthesized?

a) Hydroxy Tryptophan
b) Hydroxy Tyrosine
c) Hydroxy Alanine
d) Hydroxy Proline

23- A child with tall stature, loose joints, and detached retinas is found to have a mutation in collagen. Which of the following amino acids is the recurring amino acid most likely to be altered in mutations that distort collagen molecules?

a) Glycine
b) Tyrosine
c) Tryptophan
d) Tyrosine

24- Which one of the following amino acids may be considered a hydrophobic amino acid at physiological pH of 7.4?

a) Isoleucine
b) Arginine
c) Aspartic acid
d) Threonine

25- Which of the characteristics below apply to amino acid Glycine?

a) Optically inactive
b) Hydrophilic, basic and charged
c) Hydrophobic
d) Hydrophilic, acidic and charged

26- Which of the following amino acids in myoglobin, a globular protein, is highly likely to be localized within the interior of the molecule?

a) Arginine
b) Valine
c) Aspartic acid
d) Lysine
27- Which of the amino acids below is the uncharged derivative of an acidic amino acid?

a) Cystine  
b) Tyrosine  
c) Glutamine  
d) Serine

28- Choose the correct category for milk protein casein out of the followings

a) Nucleoprotein  
b) Phospho protein  
c) Lipoprotein  
d) Glycoprotein

Answers-

1- a  
2- d  
3- d  
4- c  
5- d  
6- d  
7- a  
8- d  
9- d  
10- b

11- c  
12- d  
13- b  
14- a  
15- c  
16- d  
17- c  
18- b  
19- a  
20- b  
21- b  
22- d  
23- a  
24- a  
25- a  
26- b  
27- c  
28- b