Q1. A given amino acid has the following pKa values : α-COOH= 2.15 , α-NH3+ = 8.95 , and side chain (RH+)= 10.53. then its PI Value is :

a) 7.21
b) 5.55
c) 6.34
d) 9.74

Q2. Which of the following is a pentapeptide?

a) Carnosine.
b) Glutathione.
c) Oxytocin.
d) Enkephalin.

Q3. What is the net charge on the peptide : phe-Glu-Lys-Met at pH12?

a) Zero
b) +1
c) -2
d) +2

Q4. How many equivalents of OH^- you need to completely titrate glutamic acid?

a) 1
b) 2
c) 3
d) 4

Q5. Which of the following amino acids has hydrophobic (non-polar) side chain ?

a) Leu
b) Glu
c) Cys
d) Ser

Q6. During titration with a strong base glutamine can exist in :

a) One ionic form
b) Tow ionic forms
c) Three ionic forms
d) Four ionic forms

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Q13. The isoelectric point of an amino acid is the point at which the molecule:

a) Is polar with overall zero charge
b) Is polar with overall negative charge
c) Is polar with an overall positive charge
d) Is nonpolar

Q14. Which of the following statements about glutathione is NOT CORRECT?

a) It contains a gamma-glutamyl residue
b) It acts as an oxidizing agent in the cell
c) The reduced form has a –SH group
d) The oxidized form contains an S-S bond

Q15. What is the net charge on the peptide: phe-Glu-Lys-Met at pH1?

a) Zero
b) +1
c) -1
d) +2

Q16. Which statement is NOT CORRECT about the peptide bond ?

a) The peptide bond has partial double-bound character
b) The peptide bond is longer than the typical carbon-nitrogen bond
c) Rotation is restricted about the peptide bond
d) The carbonyl oxygen and the amide hydrogen are most often in a *trans* configuration with respect to one another

Q17. For a given amino acid the pKa of the alpha COOH group:

a) Is higher than the pKa of the alpha ,-NH_3^+ group
b) Is lower than the pKa of the alpha , -NH_3^+ group
c) Equals to the pKa of the alpha , , -NH_3^+ group
d) Equals to the PI

Q18. How many inflection points are there in the titration curve of histidine?

a) 1
b) 2
c) 3
d) 4

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Q19. Which of the following amino acids has a -$CONH_2$ group in its side chain?

a) Glutamine
b) Glutamic acid
c) Tyrosine
d) Lysine

Q20. Which of the following amino acids is not chiral ?

a) Proline
b) Glycine
c) Alanine
d) Lysine

Q21. Which of the following amino acids is a precursor of Thyroxine?

a) Tryptophan
b) Threonine
c) Tyrosine
d) Lysine

Q22. Which of the following is a tripeptide?

a) Carnosine
b) Glutathione
c) Oxytocin
d) Enkephalin

Q23. what is the net charge on the peptide: Trp-His-Asp-Ala at pH 12?

a) Zero
b) +1
c) -1
d) -2

Q24. How many inflection points are there in the titration curve of alanine?

a) 1
b) 2
c) 3
d) 4

Q25.Which of the following amino acids is a precursor of Thyroxine?

a) Tryptophan
b) Threonine
c) Tyrosine
d) Lysine

Q26.Which of the following amino acid pairs are polar?

a) Val and Asp
b) Arg and Glu
c) Leu and Met
d) ile and Lys

Q27. During titration with a strong base asparagine can exist in :

a) One ionic form
b) Tow ionic forms
c) Three ionic forms
d) Four ionic forms

Q28. Which of the following amino acids has hydrophobic (non-polar) side chain ?

a) Val
b) Glu
c) Cys
d) Ser

Q29. Which of the following amino acids is uncommon?

a) Phenylalnine
b) Tyrosine
c) Valine
d) Thyroxine

Q30.Which of the following is a hydrophobic substance?

a) Alanine
b) Ethanol
c) Sucrose
d) Benzene

Q31.The hydroxyl group in hydroxyproline occurs at the :

a) [illegible] carbon
b) [illegible] carbon
c) α carbon
d) β carbon

Q32. Oxidized glutathione contains:

a) two peptide bonds
b) four peptide bonds
c) six peptide bonds
d) three peptide bonds .

Q33.What is the net charge on the tripeptide :Glu-Asp-Val at pH 7.0, if the pKa of NH_2 terminal = 10.1 and –COOH terminal = 2.3 ?

a) 0
b) -1
c) -2
d) +1

Q34. Which of the following is a small peptide?

a) Insulin
b) Alpha-Keratin
c) Oxytocin
d) Ribonuclease A

Q35. The peptide bond is planar as a result of :

a) Presence of free N-terminal
b) Resonance stabilization
c) Presence of alpha-carbon atom
d) Tertiary structure of the peptide

Q36. Which of the following amino acids has hydrophobic (non-polar) side chain ?

a) Ala
b) Glu
c) Cys
d) Ser

Q37.Which of the following amino acids does not occur in proteins?

a) L-phenylalnine
b) L-tyrosine
c) L-Valine
d) L-ornithine

Q38. Which of the following is a hydrophobic substance?

a) Alanine
b) Ethanol
c) Sucrose
d) Hexane

Q39. Which of the following is a hydrophilic substance?

a) Hexane
b) Acetone
c) Fatty acid
d) Cholesterol

Q40. Which of the following statement is correct about the dipeptide carnosine?

a) It is manufactured as a drug
b) It is composed of beta-Alanine-L-Histidine
c) It is composed of alpha-Alanine-L_Histidine
d) It is composed of beta_Alanine-D-Histidine

Q41.Glutathione is an important scavenger of oxidizing agents because it contains:

a) Gly
b) Cys
c) Glu
d) Met

Q42. What is the net charge on the tripeptide :Glu-Asp-Val at physiological pH if the pKa of NH_2 terminal = 10.1 and –COOH terminal = 2.3 ?

a) 0
b) -1
c) -2
d) +1

Q43.Amino acids have the zwitterionic structure:

a) At their pI
b) At very high pH
c) When the molecule carries a net negative charge
d) When the molecule carries a net positive charge

Q44. Which of the following amino acids has hydrophobic (non-polar) side chain ?

a) ile
b) Glu
c) Cys
d) Ser

Q45. During titration with a strong base Lysine can exist in :

a) One ionic form
b) Tow ionic forms
c) Three ionic forms
d) Four ionic forms

Q46.Reduced glutathione contains:

a) two peptide bonds
b) four peptide bonds
c) six peptide bonds
d) three peptide bonds

Q47.What is the net charge on the tripeptide :Gln-Asp-Val at pH 11.0, if the pKa of NH_2 terminal = 10.1 and –COOH terminal = 2.3 ?

a) 0
b) -1
c) -2
d) +1

Q48.Which of the following is a peptide hormone:

a) Enkephalin
b) Alpha-Keratin
c) Oxytocin
d) Ribonuclease A

Q49.Which of the following amino acids is optically inactive?

a) Threonine
b) Glycine
c) Alanine
d) Lysine

Q50. Which of the following amino acids is aromatic?

a) Proline
b) Serine
c) Tyrosine
d) Arginine

Q51. A given amino acid has the following pKa values: α-COOH=2.18, α-NH3=8.95, and side chain = 10.53. Then its PI value is:

a) 5.56
b) 9.74
c) 7.22
d) 6.36

Q52. Which of the following is a tripeptide?

a) Carnosine
b) Glutathione
c) Oxytocin
d) Enkephalin

Q53. What is the net charge on the peptide : Phe-Glu-Lys-Met at pH7?

a) Zero
b) +1
c) _1
d) +2

Q54.how many equivalents of OH^- you need to completely titrate asparagines?

a) 1
b) 2
c) 3
d) 4

Q55.Which of the following is a cyclic amino acid with secondary nitrogen atom?

a) Proline
b) Phenylalanine
c) Tyrosine
d) Tryptophane

Q56.which of the following amino acid is achiral?

a) Proline
b) Glycine
c) Alanine
d) Lysine

Q57.an antibiotic peptide is:

a) Glutathione
b) Gramicidin S
c) Enkephalin
d) Oxytocin

Q58. Glutathione is an important scavenger of oxidizing agents because it contains:

a) Gly
b) Cys
c) Glu
d) Met

Q59. Which amino acids contain sulfur?

a) Cysteine and lysine
b) Cysteine and methionine
c) Arginine and methionine
d) Cysteine and Isoleucine

Q60. For a given amino acid the pKa of the alpha -NH_3^+ group:

a) Is higher than the pKa of the alpha,-COOH group
b) Is lower than the pKa of the alpha ,-COOH group
c) Equals to the pKa of the alpha ,-COOH group
d) Equals to the PI

Q61.What is the net charge on the peptide : Phe-His-Asp-Lys at pH12?

a) Zero
b) +1
c) _2
d) +2

Q62. A given amino acid has the following pKa values: α-COOH=2.15, α-NH_3^+= 8.95, and side chain(RH) = 3.85. Then its PI value is:

a) 5.55
b) 3.00
c) 4.98
d) 6.40

Q63. Which of the following is a dipeptide?

a) Carnosine
b) Glutathione
c) Oxytocin
d) Enkephalin

Q64. What is the net charge on the peptide : Phe-Glu-Lys-Met at pH1?

a) Zero
b) +1
c) _1
d) +2

Q65.which of the following amino acids has one isomer?

a) Threonine
b) Glycine
c) Alanine
d) Lysine

Q66. Which of the following amino acid is aromatic?

a) Proline
b) Serine
c) Tyrosine
d) Arginine

Question	Answer	Question	Answer	Question	Answer
1	D	23	D	45	D
2	D	24	B	46	A
3	C	25	C	47	C
4	C	26	B	48	C
5	A	27	C	49	B
6	C	28	A	50	C
7	A	29	D	51	B
8	B	30	D	52	B
9	D	31	A	53	A
10	C	32	B	54	B
11	B	33	C	55	A
12	C	34	C	56	B
13	A	35	B	57	B
14	B	36	A	58	B
15	D	37	D	59	B
16	B	38	D	60	A
17	B	39	B	61	C
18	C	40	B	62	B
19	A	41	B	63	A
20	B	42	C	64	D
21	C	43	A	65	B
22	B	44	A	66	C