

أكاديمية إنفينيتي

التدريس الجامعي

Noov odat

LECTURE

Biochemistry

SUBJECT

Chapter 3 Questions

LECTURERS

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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. 2
- b) Glutathione.
- c) Oxytocin.
- d) Enkephalin. 7

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

- at 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?

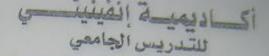
- bal Leu
 - b) Glu -
 - c) Cys
 - d) Ser

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

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

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Q7. The peptide bond, characterized by rigid motion in proteins, is formed between:

The alpha-carboxyl group of one amino acid and the alpha-amino group of the next one.

- b) The alpha-carbon of one amino acid and the alpha-amino nitrogen of the next one.
- c) The alpha carbon and the alpha-amino nitrogen of the same amino acid.
- d) The alpha-carbon and the alpha-carboxyl carbon of the same amino acid.

Q8. How many inflection points are there in the titration curve of valine?

- a) 1
- -Db) 2
 - c) 3
 - d) 4

Q9. Which of the following amino acids has the largest side chain group?

- a) Valine
- b) Phenylalanine
- c) Tyrosine
- Ddy Tryptophan 27774

Q10.Which of the following amino acid pairs are non-polar?

- a) Val and Asp
- b) Try and Arg
- De Leu and Alanine
 - d) Leu and Lys

Q11. Which of the following is an example of a sulfur-containing amino acid?

- a) Serine 🗷
- b) Methionine
 - c) Tryptophane
 - d) Aspartic acid

Q12. Which of the following is a cyclic peptide?

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

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Q13. The isoelectric point of an amino acid is the point at v	which the molecule
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- Da) 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
- -b d) +2

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

- a) The peptide bond has partial double-bound character
- 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:

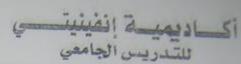
- a) Is higher than the pKa of the alpha ,-NH3+ group
- Is lower than the pKa of the alpha , -NH3+ group
 - c) Equals to the pKa of the alpha , , -NH3+ group
 - d) Equals to the PI

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

- a) 1
- b) 2
- Dc) 3
 - d) 4

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Q19. Which of the following amino acids has a -CONH2 group in its side chain?

- (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
- De Tyrosine
 - d) Lysine

Q22. Which of the following is a tripeptide?

- a) Carnosine
- Obj Glutathione
 - c) Oxytocin
 - d) Enkephalin 6

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

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

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

- a) 1
- D-61 2
 - c) 3
 - d) 4

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

- a) Tryptophan
- b) Threonine
- e) 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?

- ar Val
 - b) Glu
 - c) Cys
 - d) Ser

Q29. Which of the following amino acids is uncommon?

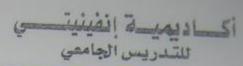
- a) Phenylalnine
- b) Tyrosine
- c) Valine
- d) Thyroxine

Q30. Which of the following is a hydrophobic substance?

- a) Alanine
- b) Ethanol
- c) Sucrose
- _____d) Benzene ___

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Q31.The h	ydroxyl	group in	hydroxyproline occurs at the	
		The second secon	The office occurs at the	

ravsonine B

- a) Y carbon
 - b) Scarbon
 - c) a carbon
 - d) B 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 NH2 terminal = 10.1 and -COOH terminal = 2.3 ?

- a) 0
- b) -1
- _Dc) -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
- D 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

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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
- Db) 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:

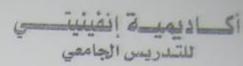
- a) Gly
- by Cys
 - c) Glu
 - d) Met

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

- a) 0
- to -1
- -> c) -2
 - d) +1

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Q43. Amino acids have the zwitterionic structure:

- a) At their pl
 - 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 al 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 :GIn-Asp-Val at pH 11.0, if the pKa of NH2 terminal = 10.1 and -COOH terminal = 2.3 ?

- a) 0
 - br -1
- -Vc) -2
 - d) +1

Q48. Which of the following is a peptide hormone:

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

a) 5.56

D 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 5

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

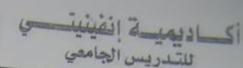
~ b) 2

_ KT 3

d) 4

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

- Pa) 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
- Cysteine and methionine
 - c) Arginine and methionine
 - d) Cysteine and Isoleucine

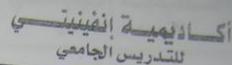
Q60. For a given amino acid the pKa of the alpha -NH3+ group:

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

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

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

Q62. A given amino acid has the following pKa values: α -COOH=2.15, α -NH3+= 8.95, and side chain(RH) =

- a) 5.55
- D by 3.00
 - c) 4.98
 - d) 6.40

Q63. Which of the following is a dipeptide?

- Da) 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
- Tyrosine
 - d) Arginine

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