



QUIZ TIME

Bio-

chemistry

Lec 5+6+7

Done by:

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1. Which of the following functional groups is present in all amino acids?

- A. Amide group
- B. Ketone group
- C. Sulfhydryl group
- D. Carboxyl group
- E. Ether group

Answer: D

2. An amino acid with one amino group and one carboxylic group, and an equal number of each, is classified as:

- A. Acidic amino acid
- B. Basic amino acid
- C. Neutral amino acid
- D. Essential amino acid
- E. Glucogenic amino acid

Answer: C

3. Which of the following amino acids is ketogenic only?

- A. Isoleucine
- B. Phenylalanine
- C. Tyrosine
- D. Leucine
- E. Tryptophan

Answer: D

4. Which of the following is an essential amino acid?

- A. Glycine
- B. Serine
- C. Histidine
- D. Alanine
- E. Glutamate

Answer: C

5. What is the term used for amino acids that are converted into both glucose and ketone bodies?

- A. Glucogenic
- B. Ketogenic
- C. Mixed
- D. Essential
- E. Non-essential

Answer: C

6. Which amino acid is semi-essential and synthesized in small amounts in the body?

- A. Leucine
- B. Arginine
- C. Methionine
- D. Tyrosine
- E. Valine

Answer: B

7. Which of the following is not a biological role of proteins?

- A. Enzyme formation
- B. Energy storage
- C. Antibody formation
- D. Hormone production
- E. Hemoglobin synthesis

Answer: B

8. Which of the following proteins is simple and coagulated by heat?

- A. Albumin
- B. Caseinogen
- C. Keratin
- D. Hemoglobin
- E. Collagen

Answer: A

9. Which is not true regarding albuminoids (scleroproteins)?

- A. Not soluble
- B. Digested by enzymes
- C. Not coagulated by heat
- D. Found in nails and hair
- E. Provide structural support

Answer: B

10. Which of the following is a chromoprotein?

- A. Caseinogen
- B. FSH
- C. Ferritin
- D. Hemoglobin
- E. Albumin

Answer: D

11. Which of the following proteins is a conjugated protein with a metal component?

- A. Prolamin
- B. Peptone
- C. Ferritin
- D. Histone
- E. Globulin

Answer: C

12. The primary structure of a protein is held together by:

- A. Hydrogen bonds
- B. Peptide bonds
- C. Disulfide bonds
- D. Ionic bonds
- E. Van der Waals forces

Answer: B

13. Which of the following best describes an α -helix structure?

- A. Zigzag pattern
- B. Beta-pleated shape
- C. Random coil
- D. Coiled peptide chain
- E. Multisubunit assembly

Answer: D

14. In the tertiary structure, which force is responsible for bonding between nonpolar side chains?

- A. Hydrogen bonds
- B. Ionic bonds
- C. Disulfide bonds
- D. Hydrophobic interactions
- E. Peptide bonds

Answer: D

15. The quaternary structure of a protein involves:

- A. Formation of alpha helix
- B. Covalent bonding only
- C. Interaction of several polypeptide subunits
- D. Primary structure of one peptide
- E. Folding into β -sheets

Answer: C

16. Which protein has quaternary structure with 4 subunits?

- A. Albumin
- B. Keratin
- C. Hemoglobin
- D. Myosin
- E. Actin

Answer: C

17. Coagulated albumin is an example of:

- A. Simple protein**
- B. Conjugated protein**
- C. Primary derived protein**
- D. Secondary derived protein**
- E. Lipoprotein**

Answer: C

18. Which derived protein is formed from enzymatic hydrolysis?

- A. Coagulated globulin**
- B. Proteose**
- C. Collagen**
- D. Histone**
- E. Prolamin**

Answer: B

19. Which protein is easily digested and forms gel upon cooling?

- A. Prolamin**
- B. Albumin**
- C. Gelatin**
- D. Globulin**
- E. Caseinogen**

Answer: C

20. A 72-year-old male presents with progressive memory loss and inability to recognize family members. Which disease is most likely?

- A. Parkinson's disease**
- B. Cystic fibrosis**
- C. Huntington's disease**
- D. Alzheimer's disease**
- E. ALS**

Answer: D

21. What is the main cause of the disease in the previous question?

- A. Neuronal necrosis
- B. Protein misfolding
- C. DNA mutation
- D. Autoimmune attack
- E. Deficiency in neurotransmitters

Answer: B

22. A patient lacks enzymes that form disulfide bonds in tertiary protein structure. Which amino acid's bonding would be most affected?

- A. Glycine
- B. Leucine
- C. Arginine
- D. Cysteine
- E. Alanine

Answer: D

23. A mutation causes loss of a single amino acid in the primary structure of insulin. Which of the following consequences is most expected?

- A. Hemoglobin aggregation
- B. Complete denaturation
- C. Change in folding and loss of function
- D. No effect at all
- E. Immune system suppression

Answer: C

24. A patient has lipid transport issues. Which conjugated protein is likely deficient?

- A. Glycoprotein
- B. Lipoprotein
- C. Metalloprotein
- D. Prolamin
- E. Chromoprotein

Answer: B

25. A structural protein in tendons and bones is being analyzed. It's not soluble, not heat-coagulated, and not found in plants. What is it most likely?

- A. Globulin
- B. Albumin
- C. Albuminoid
- D. Lipoprotein
- E. Glycoprotein

Answer: C

26. What is the best definition of an enzyme?

- A. A protein that breaks down glucose
- B. A catalyst that permanently changes during the reaction
- C. A substance that decreases activation energy without being consumed
- D. A reactant that initiates metabolic reactions
- E. A molecule that only works at high temperatures

answer: C

27. The active site of an enzyme is:

- A. The part that binds inhibitors
- B. Where coenzymes bind
- C. Where the substrate binds and catalysis occurs
- D. Always located on the allosteric region
- E. The site for energy storage

answer: C

28. Which model explains the flexibility of the enzyme upon substrate binding?

- A. Lock and Key
- B. Enzyme Turnover Model
- C. Michaelis-Menten Model
- D. Induced Fit
- E. Rigid Binding Model

answer: D

29. Urease is an example of:

- A. Group specificity
- B. Absolute specificity
- C. Linkage specificity
- D. Broad specificity
- E. Isoenzyme activity

answer: B

30. Enzymes speed up reactions by:

- A. Increasing substrate concentration
- B. Raising temperature of the environment
- C. Lowering the activation energy
- D. Providing extra energy to reactants
- E. Breaking down enzymes themselves

answer: C

31. What happens when substrate concentration increases but the enzyme is saturated?

- A. Rate increases infinitely
- B. Rate decreases
- C. No change in rate
- D. Rate becomes zero
- E. Enzyme becomes denatured

answer: c

32. A researcher is studying the enzyme catalase at 37°C. She heats the reaction mixture to 100°C. What is the most likely outcome?

- A. Enzyme activity increases sharply
- B. Substrate converts faster
- C. Enzyme is denatured, activity drops
- D. K_m is decreased
- E. New product is formed

answer: C

33. A patient's pancreatic lipase functions best at a certain pH. If stomach acid enters the small intestine, what would most likely happen to the enzyme activity?

- A. Activity increases
- B. Activity remains stable
- C. Activity stops due to extreme pH
- D. Lipase becomes more specific
- E. V_{max} increases

answer: C

34. A scientist added a non-competitive inhibitor to an enzyme reaction. Which of the following changes would she expect?

- A. K_m increases, V_{max} same
- B. K_m same, V_{max} decreases
- C. Both K_m and V_{max} increase
- D. Substrate outcompetes inhibitor
- E. Enzyme denatures immediately

answer: B

35. Michaelis constant (K_m) represents:

- A. The minimum pH for enzyme function
- B. The concentration of enzyme required
- C. The substrate concentration at half V_{max}
- D. Total enzyme saturation level
- E. The amount of energy released

answer: C

• اللهم يسّر لنا الصعب، وذكّرنا ما نسينا، واجعل تعبتنا هذا في ميزان حسناتنا