

GURUDAS COLLEGE
DEPARTMENT OF BIOCHEMISTRY
UG INTERMEDIATE EXAMINATION, 2020
B.SC PART II BIOCHEMISTRY HONS.
PAPER III MODULE VI

TIME 30 mins

FULL MARKS

25

Answer all the questions:
Choose correct answer:

1. Enzymes are the catalysts of protein nature. Name the property of enzymes which is not presented at the inorganic catalysts:

- a) Ability to the denaturation
- b) Wide specificity
- c) Inert to chemical substrates
- d) Big half-life
- e) Ability to lowering the energy to activate the reaction.

2. Some terms are used for the description of non-protein part of an enzyme. Point out the term of non-protein part, which easily dissociates from polypeptide chain:

- a) Apoenzyme
- b) Coenzyme
- c) Prosthetic group
- d) Cofactor
- e) Metal ions.

3. What is the chemical nature of enzymes?

- a) Carbohydrates
- b) Lipids
- c) Proteins
- d) Nucleic acids
- e) Polysaccharides.

4. A substrate molecule is split upon enzyme action, and the water is used for the product's structure formation. Name the enzyme class:

- a) Oxidoreductase
- b) Hydrolase
- c) Lyase
- d) Ligase
- e) Isomerase.

5. A qualitative composition of product's molecule is completely identical to substrate's one, but the structure is different. Name the enzyme class:

- a) Oxidoreductase;
- b) Hydrolase
- c) Lyase
- d) Ligase
- e) Isomerase.

6. How many classes of enzymes are there?

- a) 4
- b) 5
- c) 6
- d) 7
- e) 9.

7. What kind of reactions is catalyzed by hydrolases?

- a) Hydrolytic cleavage of substrates
- b) Transfer of hydrogen atoms between substrates
- c) Addition to double bonds
- d) Formation of bonds with ATP cleavage
- e) Transposition of functional groups between substrates.

8. Which of the following is correct?

- a) Apoenzyme + Cofactor = Holoenzyme
- b) Apoenzyme – Cofactor = Holoenzyme
- c) Apoenzyme= Cofactor- Holoenzyme

d) None of the above

9. Ribozymes are

a) RNA acting as enzymes

b) Ribose sugar acting as enzyme

c) Antibodies acting as enzymes

d) Protein acting as enzyme

10. A competitive inhibitor of an enzyme is usually:

a) a highly reactive compound.

b) a metal ion such as Hg^{2+} or Pb^{2+} .

c) structurally similar to the substrate.

d) water insoluble.

e) a poison.

11. A non-competitive inhibitor of an enzyme catalyzed reaction

a) binds to the Michaelis complex (ES).

b) decreases V_{max} .

c) is without effect at saturating substrate concentrations.

d) can actually increase reaction velocity in rare cases.

e) The first and second choices are both correct.

12. A competitive inhibitor has the following effect on a Lineweaver-Burke (double reciprocal) Plot.

a) It moves the entire curve to the right.

b) It moves the entire curve to the left.

c) It changes the y-intercept.

d) It changes the x-intercept.

e) It has no effect on the slope.

13. The degree of inhibition α by a competitive inhibitor is obtained from

a) measurement of V_{max} .

b) measurement of the y-intercept on a Lineweaver-Burke Plot.

c) measurement of K_M .

d) crystallographic studies.

- e) is unrelated to the binding affinity of the inhibitor to the enzyme.
14. An enzyme which requires a biological change in order to become active is called
- a) trypsin
 - b) reductase
 - c) transferase
 - d) zymogen
 - e) catalase
15. The chief cells at the base of the gastric glands secrete the zymogen which is called
- a) trypsin
 - b) elastase
 - c) pepsinogen
 - d) trypsinogen
 - e) pepsin
16. Which of the following is false for lactate dehydrogenase (LDH)?
- a) It is a tetrameric enzyme
 - b) It catalyses reversible phosphorylation of creatinine to creatinine phosphate by ATP
 - c) It has five isoenzymes
 - d) It is made up of two polypeptides
 - e) It is found in heart muscle
17. Which of the following property is not shown by isoenzyme?
- a) Sigmoidal shaped curve
 - b) Electrophoretic mobility
 - c) Kinetic properties
 - d) Amino acid composition
 - e) Isoenzymes are coded by different genes
18. For a protein to have a quaternary structure, it must
- a. has four amino acids
 - b. consists of two or more polypeptide subunits
 - c. consists of four polypeptide subunits
 - d. has at least four disulphide bridges

19. What does a protein lose when it denatures?
- its primary structure
 - its peptide bonds
 - its sequence of amino acids
 - its three-dimensional shape
20. At isoelectric point, net mobility of amino acid is
- towards cathode
 - towards anode
 - zero
 - none of these
21. Cation exchanger is itself
- positively charged
 - negatively charged
 - neutral
 - both a and c
22. Proteins may be separated according to the size by
- reverse phase chromatography
 - ion exchange chromatography
 - molecular exclusion chromatography
 - isoelectric focussing
23. The mean molecular weight of an amino acid residue is
- 70
 - 110
 - 150
 - 90
24. The elution of a protein from size exclusion chromatography depends on
- the size of protein alone
 - the size and shape of the protein
 - the size and surface charge distribution of protein
 - the shape and surface charge distribution of protein
25. Alpha-helix structure is disrupted by
- proline
 - arginine

- c. histidine
- d. lysine