

CS/2110

5495/NH

Note: Please write legibly, only on one side of sheets, number them and write their total No. In the Column provided for the purpose above.

3<sup>rd</sup> Sem.

Subject: ENZYMOLOGY

Time: 03 hours

Paper No. (with nomenclature): BHB-15

Maximum Marks: 74

| Serial .No.<br>Of Questions | <i>(Space for Instructions to the Examinees)</i>  | Marks      |
|-----------------------------|---|------------|
|                             | The candidate is required to attempt 2 questions each from Section A and B. Candidate has to attempt all questions in Section C.  |            |
|                             | <b>SECTION-A</b>  |            |
| 1.                          | Elucidate the strategy for the isolation and purification of an enzyme taking a suitable example. Why do we need to crystallize an enzyme?  | (11)       |
| 2.                          | What kind of parameters have been used to classify enzymes. Mention about various classes of enzymes along with their functions citing suitable examples  | (11)       |
| 3.                          | What is the significance of the following:<br>a. Chymotrypsin<br>b. Lysozyme<br>c. Feedback control   | (4+4+3=11) |
| 4.                          | a. Describe various parameters associated with catalytic efficiency of an enzyme.<br>b. What do you understand by Enzyme inhibition and various types of inhibitions? How would you determine the $K_i$ values? | (5.5x2=11) |
|                             | <b>SECTION-B</b>  |            |
| 5.                          | What are Isoenzymes and their physiological importance? Describe the significance of lactate dehydrogenase in this context.   | (11)       |
| 6.                          | Discuss the significance of the following citing suitable examples:<br>1. Hill and Scatchard Plots<br>2. Enzyme-Enzyme interaction  | (5.5x2=11) |
| 7.                          | A. What strategies would you employ for the protein sequencing?<br>B. How would you analyze the tertiary structure of enzymes?  | (5.5x2=11) |

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|                  |  |           |
|------------------|--|-----------|
| 8.               | What do you understand by the Immobilized enzymes and their precise applications in health and industry?   | (11)      |
| <b>SECTION-C</b> |  |           |
| 9.               | What is the significance of the following:<br>1. Proteases<br>2. Prothrombin<br>3. E-S complex<br>4. Km and Vmax<br>5. Rate-limiting enzyme<br>6. Zymogens<br>7. Ping-Pong Reactions<br>8. Nucleophilic catalysis<br>9. Allosteric inhibitor<br>10. Binding Isotherm<br>11. Enzyme inhibitors<br>12. Suicidal inhibition<br>13. Diagnostic enzymes<br>14. Turn over number of enzyme<br>15. Non-competitive Inhibition | (15x2=30) |

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