**22BCU207N**

**PSG COLLEGE OF ARTS & SCIENCE**
(AUTONOMOUS)

**BSc DEGREE EXAMINATION MAY 2025**
(Second Semester)

Branch - **BIOCHEMISTRY**

**ENZYMOLOGY**

Time: Three Hours

Maximum: 75 Marks

**SECTION-A (10 Marks)**
Answer **ALL** questions
**ALL** questions carry **EQUAL** marks (10 × 1 = 10)

| Module No. | Question No. | Question | K Level | CO |
|---|---|---|---|---|
| 1 | 1 | Which prosthetic groups get attached to the enzyme at the time of reaction<br>a) cofactors b) coenzymes<br>c) messengers d) inhibitors | K1 | CO1 |
| | 2 | Show the enzyme which catalyzes the oxidation-reduction reaction<br>a) Transaminase b) Glutamine synthetase<br>c) Phosphofructokinase d) Oxidoreductase | K2 | CO1 |
| 2 | 3 | Name the enzyme involved in feedback inhibition<br>a) Allosteric enzyme b) Holoenzyme<br>c) Apoenzyme d) Co enzyme | K1 | CO2 |
| | 4 | Which of the following is INCORRECT for the lock-and-key model?<br>a) It is used to describe the binding process<br>b) The active site of the enzyme is complementary to the substrate<br>c) It demonstrates enzyme-substrate complex<br>d) The binding of the substrate produces a conformational change in enzyme | K2 | CO2 |
| 3 | 5 | Ki indicates<br>a) Reaction velocity b) Competitive inhibition<br>c) Denaturation of enzyme d) Temperature | K1 | CO3 |
| | 6 | Line Weaver-Burk plot is also known as_____<br>a) Double reciprocal plot b) Hanes-Woolf plot<br>c) Eadie-Hofstee plot d) Steady-state equation | K2 | CO3 |
| 4 | 7 | Which one of the following is used in most industrial enzyme production?<br>a) Microorganisms b) Animal tissues<br>c) Plants d) Insects | K1 | CO4 |
| | 8 | Which one of the following clinical condition does not show increase of amylase concentration?<br>a) Diabetic ketoacidosis b) Cardiac failure<br>c) Salivary gland disorder d) Ruptured ectopic pregnancy | K2 | CO4 |
| 5 | 9 | Choose which one of the following technique is not ideal for immobilized cell free enzyme<br>a) Physical bonding by flocculation<br>b) Covalent surface bonding to surface carriers<br>c) Physical entrapment by encapsulation<br>d) Covalent chemical bonding by cross linking the precipitate | K1 | CO5 |
| | 10 | Infer which one of the following technique has been formed by combining ELISA techniques with the biosensor<br>a) calorimetric biosensor b) piezo-electric biosensor<br>c) Immuno sensor d) potentiometric biosensor | K2 | CO5 |

**Cont...**

## SECTION - B (35 Marks)

Answer **ALL** questions
**ALL** questions carry **EQUAL** Marks (5 × 7 = 35)

| Module No. | Question No. | Question | K Level | CO |
|---|---|---|---|---|
| 1 | 11.a. | Enlist the classification of Enzymes with suitable examples. | K1 | CO1 |
| | | (OR) | | |
| | 11.b. | Label the structure and functions of NAD+ and NADP+. | | |
| 2 | 12.a. | Explain Isoenzymes with suitable example. | K2 | CO2 |
| | | (OR) | | |
| | 12.b. | Outline the mechanism of carboxypeptidase. | | |
| 3 | 13.a. | Explain Line Weaver Burk blot. | K2 | CO3 |
| | | (OR) | | |
| | 13.b. | Summarize testosterone and prostate cancer. | | |
| 4 | 14.a. | Explain enzymes as antioxidant. | K2 | CO4 |
| | | (OR) | | |
| | 14.b. | Show the applications of enzymes in food , textile and leather industry. | | |
| 5 | 15.a. | Illustrate the components and applications of Optical Biosensor. | K2 | CO5 |
| | | (OR) | | |
| | 15.b. | Outline the role of enzymes in Bioremediation. | | |

## SECTION -C (30 Marks)

Answer **ANY THREE** questions
**ALL** questions carry **EQUAL** Marks (3 × 10 = 30)

| Module No. | Question No. | Question | K Level | CO |
|---|---|---|---|---|
| 1 | 16 | Derive Michalis Mendel Equation. | K3 | CO1 |
| 2 | 17 | Explain Multi enzyme complex. | K2 | CO2 |
| 3 | 18 | Interpret the three types of Reversible Inhibitors. | K2 | CO3 |
| 4 | 19 | Summarize the Industrial applications of enzymes. | K3 | CO4 |
| 5 | 20 | Illustrate the methods of Immobilization and its applications. | K2 | CO5 |

Z-Z-Z END