INDUSTRIAL MICROBIOLOGY AND ENZYME TECHNOLOGY (BIOT 2204)

Time Allotted : 3 hrs **Full Marks : 70**

Figures out of the right margin indicate full marks.

Candidates are required to answer Group A and any 5 (five) from Group B to E, taking at least one from each group.

Candidates are required to give answer in their own words as far as practicable.

Group – A
(Multiple Choice Type Questions)

1. Choose the correct alternative for the following: **10 × 1 = 10**

(i) Alkalaine protease is mainly used in
(a) Leather industry (b) Detergent industry
(c) Paper industry (d) None of these

(ii) Which of the following reactor does not allow the control of pH
(a) Packed Bed Reactor (b) CSTR
(c) Bubble Column Reactor (d) None of the above

(iii) Most common organism used in Koji process is
(a) Penicillium notatum (b) Pseudomonas ovalis
(c) Bacillus subtilis (d) Aspergillus niger

(iv) Most common carrier for biofertilizer is
(a) Glutaraldehyde, (b) Dextran
(c) Cyanogen bromide (d) Acetic anhydride

(v) Renin is used in
(a) Baking industry (b) Textile industry
(c) Brewing industry (d) None of these

(vi) The enzyme Lipase is classified as
(a) Lyase (b) Transferase
(c) Hydrolase (d) Oxidoreductase

(vii) Streptomycin is synthesized by
(a) Yeast (b) Actinomycetes
(c) Archae (d) Bacteria

(viii) Glucose is converted to fructose by
(a) Glucose isomerase (b) Pectinase
(c) Cellualase (d) Glucose oxidase

(ix) Immobilization technique where enzyme molecules are confined within a semi-permeable membrane is known as
(a) Entrapment (b) Covalent Bonding
(c) Encapsulation (d) Cross-linking

(x) Purity of enzyme can be checked by
(a) Specific activity (b) Total activity
(c) Total protein (d) None of these

Group – B

2. (a) Schematically illustrate xanthan production with flow diagram.
(b) How vitamin B12 is recovered?
(c) What is incomplete oxidation and give example.

6 + 3 + 3 = 12

3. (a) Schematically illustrate tetracyclin production with flow diagram.
(b) Name producer organisms for acetic acid production
(c) How citric acid is recovered?

7 + 2 + 3 = 12

Group – C

4. Write notes on:
(i) Screening technique
(ii) Fed batch fermentation
(iii) Photoreactivation repair

(4 + 4 + 4) = 12

5. (a) Discuss the function of bioreactor and pilot plant in any fermentation.
(b) Distinguish batch and fed batch fermentation.
(c) Briefly discuss point mutation.

4 + 4 + 4 = 12

Group – D

6. (a) How can you immobilize enzymes by Entrapment method? Write its advantages and limitations.
(b) Describe the working principle of CSTR as reactor of immobilized enzymes.

(3 + 4) + 5 = 12

7. (a) Define extremophile microbes. Why they are important in industry?
(b) Explain how blood alcohol and triglyceride are estimated by enzymatic method.

(c) What is oxidoreductase and give one example.

5 + 5 + 2 = 12

Group – E

8. (a) What is the difference between total activity and specific activity?

(b) Briefly explain the effect of any one factor that affect enzyme activity.

(c) Mention the role of amylase in two different industries.

5 + 5 + 2 = 12

9. (a) Discuss the working principle of Potentiometric Biosensor.

(b) Explain how enzyme biosensors can be used in detecting bacteria in food samples.

6 + 6 =12

Department & Section	Submission Link
BT	https://classroom.google.com/c/MzM0NjkwMzA2NTIz/a/MzcxNjU2NTg5Mjk0/details