

Sem - VI
Subject : Industrial Biotechnology

Day : Tuesday
Date : 13/10/2015



Time : 02.00 PM TO 05.00 PM
Max Marks : 80 Total Pages : 1

N.B:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Both the sections should be written in **SEPARATE** answer book.

SECTION-I

- Q.1** A Answer **ANY ONE** of the following: (06)
- a) What are antifoam agents? Explain its role in fermentation media with examples.
 - b) Give a brief account on various nitrogen sources used in fermentation media.
- B Answer **ANY TWO** of the following: (10)
- a) Give a brief overview on development of inoculum.
 - b) Discuss the role of inducers and precursors in media formulation.
 - c) What is continuous fermentation? Discuss various categories of microbial fermentation product.
- Q.2** Write short notes on **ANY FOUR** of the following: (16)
- a) Criteria for selection of components for production media.
 - b) Inoculum media.
 - c) Primary screening of industrially important micro-organisms.
 - d) Strategy for cloning of α -amylase gene for improved amylase production.
 - e) Assessment of papain activity

SECTION-II

- Q.3** A Answer **ANY ONE** of the following: (06)
- a) Explain solid state fermentation process for the production fungal amylase.
 - b) Give an overview on microbial production of lactic acid. Mention its applications.
- B Answer **ANY TWO** of the following: (10)
- a) What is semi-synthetic penicillin? Explain microbial penicillin fermentation in detail.
 - b) Discuss various methods of enzyme immobilization. Mention applications of immobilized enzymes.
 - c) How glucose monitoring is carried out during fermentation process?
- Q.4** Answer **ANY FOUR** of the following: (16)
- a) What is downstream processing? Explain rotary vacuum filter in brief.
 - b) Draw well labeled diagram of typical fermenter showing its component parts.
 - c) Explain the process of extraction of papain
 - d) Draw flow chart diagram of streptomycin fermentation.
 - e) What is reverse osmosis? Mention its significance in industrial biotechnology.
- Q.5** Write short notes on **ANY FOUR** of the following: (16)
- a) Spray drying
 - b) Applications of papain
 - c) Production and applications of carotenoid
 - d) Trickling filter
 - e) Recovery of gluconic acid from fermentation broth

Subject : Applied Biotechnology

Day : Thursday

Date : 15/10/2015



Time : 02.00 PM TO 05.00 PM

Max Marks : 80 Total Pages : 1

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.

SECTION – I

- Q.1** Answer **ANY FOUR** of the following: [16]
- a) Which are the meat tenderizing enzymes? Explain the mode of action of any two such enzymes.
 - b) Describe the role of petosans in bread making.
 - c) What different products can be obtained from fish waste?
 - d) Explain how yeast lees from winery waste can be a nutritional suppliment.
 - e) Discuss methods of preservation of bagasse.
- Q.2** Write short notes on **ANY FOUR** of the following: [16]
- a) Applications of pepsin in fish processing
 - b) Enzymes in cheese ripening
 - c) Haze proofing enzymes
 - d) Properties of immobilized enzymes
 - e) Importance of Arginase in bread making

SECTION – II

- Q.3** Give reasons for: [16]
- a) Grape pomace cannot be used as fertilizer.
 - b) Treatment for bamboo is necessary for preservation.
 - c) Recovery of silver is important.
 - d) Gluten contents have to be monitored in baking.
- Q.4** Answer **ANY FOUR** of the following: [16]
- a) How is High Fructose Corn syrup made? Discuss briefly.
 - b) Describe briefly the structure of citrus fruit and how the components affect juice extraction.
 - c) What is the importance of low molecular weigh peptides generated during protein hydrolysis?
 - d) Discuss briefly the commercial value for Banana waste and Teak waste.
 - e) What are surfactants? Name the different types and explain their role.
- Q.5** Answer the following in **ONE** or **TWO** sentences: [16]
- a) Removal of scales of fish is made easy with the use of enzymes. Name these enzymes.
 - b) How does catalase help in dairy process?
 - c) Name the value added products that can be obtained form grape pomace.
 - d) Which components in peanut meal limits its utility in food and fertilizer market?
 - e) What is the importance of fish skin peptides?
 - f) Which enzymes can be used for production of Glucose on commercial scale?
 - g) Name the enzymes used for clarification and stabilization of fruit juice.
 - h) What are main target for bleach in cleansing mechanism?

Subject : Clinical Biotechnology

Day : Saturday

Date : 17/10/2015



Time : 02.00 PM TO 05.00 PM

Max Marks : 80 Total Pages : 2

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to right indicate **FULL** marks.
- 3) Answer to the two sections should be written in **SEPARATE** answer books.

SECTION - I

Q.1 A) Attempt ANY ONE (06)

- i) Explain the steps in leukocyte migration with help of diagrams
- ii) Explain the structure and function of 1) Hemoglobin 2) Prothrombin 3) LDLs and HDLs
- iii) Explain the role of ADH in water balance

B) Attempt ANY TWO (10)

- i) What is hemoglobin S? What are the structural mutations of Hemoglobin S in sickle cell anemia?
- ii) Explain briefly each step post vascular injury.
- iii) With help of a diagram explain phases in phagocytosis
- iv) Explain the differences between type I and type II diabetes.

Q.2 Write short notes ANY FOUR (16)

- i) Jaundice
- ii) Coagulation tests
- iii) Glycated Hemoglobin and its testing
- iv) Structure and function of kidney
- v) Thalassemia
- vi) Fibrinogen

P.T.O.

SECTION -II

Q.3 A) Attempt ANY ONE of the following (06)

- i) Explain various classes of immunoglobulins.
- ii) Describe clonal selection theory.
- iii) Differentiate between cellular and humoral immunity.

B) Attempt ANY TWO of the following (10)

- i) Explain Antigen presenting cells.
- i) Explain immunoflorescence and their application.
- iii) What are antigens ?In what way does they differ from Immunogens.

Q.4 Attempt ANY FOUR of the following. (16)

- i) Adjuvants.
- ii) Phagocytosis.
- iii) TLR.
- iv) MHC Molecules.
- v) Immunodifussion
- vi) Molecular structure of IgG

Q.5 Answer the following

A) Define the following ANY TWO (04)
i) Cytokines., ii) B cells .iii)BCR

B) Write principal and application of ELISA. (04)

C) Fill in the blanks:- (08)

- i) -----and -----are secretary antibodies.
- ii) -----are present in breast milk.
- iii) -----is used as substrate in ELISA
- iv) J chain is present in -----and-----
- v) -----is present in abundant in serum.
- vi) -----membrane is used in western blotting.
