

Subject : Industrial Biotechnology

Day : Monday
Date : 10/10/2016



Time : 02.00 PM TO 05.00 PM
Max Marks : 80 Total Pages : 2

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 the **SEPARATE** answer books.

SECTION - I

Q. 1 A) Answer ANY ONE of the following: (06)

- i) Define maintenance media. Explain the role of chelators, inducers and precursors in fermentation medium.
- ii) Mention the criteria for selection of industrially important micro organisms. Explain secondary screening with example.

B) Answer ANY TWO of the following: (10)

- i) How inoculum development of mycelial organisms is carried out?
- ii) Describe solid state fermentation of amylase.
- iii) What are antifoams? Explain their role in fermentation media.

Q. 2 Write short notes on ANY FOUR of the following: (16)

- a) Strain improvement techniques
- b) Batch fermentation
- c) Nitrogen sources in media
- d) Criteria for transfer of inoculum
- e) Global scenario of enzyme production

SECTION - II

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

- i) Explain various component parts of typical bioreactor.
- ii) Describe the process of latex collection and extraction of papain from it.

B) Answer ANY TWO of the following: (10)

- i) Discuss various methods of enzyme immobilization. What is the significance of immobilized enzyme?
- ii) How levels of glucose and biomass are monitored during fermentation?
- iii) Explain the anaerobic process of effluent management.

P. T. O.

- Q. 4** Answer **ANY FOUR** of the following: (16)
- a) Explain filtration process using plate and frame filter.
 - b) Give an overview of penicillin fermentation.
 - c) Discuss monitoring and control of pH during fermentation.
 - d) Explain industrial fermentation and recovery of ethanol.
 - e) Describe production and applications of Lactic acid.
- Q. 5** Write short notes on **ANY FOUR** of the following: (16)
- a) Carotenoid production
 - b) Trickling filter
 - c) Basket centrifuge
 - d) Flow chart of streptomycin fermentation
 - e) Spray drying

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Subject : Applied Biotechnology

Day : Thursday

Date : 13/10/2016



31439

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 **SEPERATE** answer book.

SECTION-I

- Q.1** Attempt any **ONE** of the following: (06)
- a) What is value addition? Explain value addition in grape products.
 - b) Why is meat tenderization important? Describe the enzymes used for this process.
- Q.2** Attempt any **TWO** of the following: (10)
- a) What are the various by products of fish processing? Explain their use in brief.
 - b) What is the role of proteolytic enzymes in food processing? Which microorganisms are being used for its production.
 - c) What is High Fructose Corn Syrup? What are its applications?
- Q.3** Answer any **FOUR** of the following: (16)
- a) How are malto-dextrins prepared on a commercial scale?
 - b) What is the role of enzymes in laundry detergents?
 - c) What is synthetic penicillin? Explain in brief.
 - d) How can silver be recovered from waste photographic films?
 - e) What is rennet? Discuss its importance in dairy industry.

SECTION-II

- Q.4** Attempt any **ONE** of the following: (06)
- a) What is enzyme immobilization? Describe the properties of immobilized enzymes.
 - b) Describe the various method of preserving bamboo.
- Q.5** Attempt any **TWO** of the following: (10)
- a) Enzymes that are important for fruit Juice extraction.
 - b) De-hairing of hide.
 - c) What is Gluten? What is its significance in bakery industry?
- Q.6** Write short notes on: (16)
- a) Baggasse- its importance and application.
 - b) What are the specialized products for diabetic patients? Discuss in brief.
 - c) What is Haze? How can it be prevented?
 - d) Grape seed oil and its uses.
- Q.7** Answer the following: (16)
- a) What are yeast lees? What are its uses?
 - b) Name the enzymes important for bakery industry.
 - c) What is the importance of hemicellulase and pentosanase in industrial processes?
 - d) What is 'Staling'? How can it be prevented?
 - e) What is the significance of arginase in baking industry?
 - f) Which compounds are indicators of fish spoilage?
 - g) What is lactose intolerance? How is it over come?
 - h) What is ripening of cheese? Which enzymes play a role in this process?

Subject : Clinical Biotechnology

Day : Friday

Date : 14/10/2016



31440

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) Draw neat and labeled diagrams **WHEREVER** necessary.
- 4) Answers to both the sections should be written in **SEPARATE** answer books.

SECTION - I

- Q.1** A) Attempt **ANY ONE** of the following: [06]
- i) Describe the blood coagulation process. Add a note on various tests for clotting process.
 - ii) What is hemogram and glycosylated Hemoglobin? Explain various tests for determination of hemoglobin and glycosylated hemoglobin.
- B) Attempt **ANY TWO** of the following: [10]
- i) Explain metabolism of RBC. Describe different types of anemias.
 - ii) Describe urine analysis in detail.
 - iii) What is the difference between blood plasma and serum? Add a note on preservation of blood samples.
- Q.2** Attempt **ANY FOUR** of the following: [16]
- a) Explain structure and functions of liver.
 - b) Describe any two types of jaundice.
 - c) Describe the reactions of SGOT, SGPT enzyme and their clinical significance.
 - d) Write a short note on lipid profile.
 - e) Describe different anticoagulants with their clinical use.

SECTION - II

- Q.3** A) Attempt **ANY ONE** of the following: [06]
- i) Explain the cells of the immune system in detail.
 - ii) Describe how the quantification of antigen / antibody in the serum proteins is undertaken, using radial immuno diffusion and rocket electrophoresis.
- B) Attempt **ANY TWO** of the following: [10]
- i) Discuss the flow cytometry. State how diagnosis of leukemias and lymphomas is undertaken.
 - ii) Explain various classes of immunoglobulin. State the clonal selection theory.
 - iii) Describe the primary lymphoid organs along with their functions.
- Q.4** Write short notes on **ANY FOUR** of the following: [16]
- a) Class I and II MHC molecules and polymorphism
 - b) ELISA and Western Blot
 - c) Applications of Immuno-histochemistry
 - d) Development and maturation of B cells
 - e) Detection of hormones and soluble proteins using RIA.
- Q.5** Answer **ANY EIGHT** in one or two sentences: [16]
- a) Explain immunophenotyping.
 - b) Name the various applications of ELISA.
 - c) Explain the various organs of immune system.
 - d) Explain the terms: MHC, RIA.
 - e) What are monoclonal antibodies?
 - f) Define: Allotype, isotype and idiotypic.
 - g) What is the difference between innate and adaptive immunity.
 - h) Explain the various types of T helper cells.
 - i) Describe the uses of histochemistry and immuno-histochemistry in cancer detection.