

PARUL UNIVERSITY
FACULTY OF APPLIED SCIENCE
M.Sc., 2017-18 Examination

Semester: 4
Subject Code: 11202251
Subject Name: Bioprocess Engineering and Technology

Date: 08/05/2018
Time: 02:00 pm to 04:30 pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

- Q.1. A) Essay type (Each of 04 marks) (08)**
 (a) Describe any four different methods of enzyme immobilization
- Q.1. B) Answer the following questions (Any two)**
- (a) Short note (Each of 04 marks) (04)
 1. What are the advantages of immobilized enzyme
- (b) Write short note on Packed bed reactors (04)
- (c) list out the industrial application of immobilized enzyme (04)
- Q.2. A) Answer the following questions.**
- (a) Short note (Each of 04 marks) (04)
 1. Write a short note on Aeration.
- (b) Write a short note on agitation (04)
- Q.2. B) Answer the following questions (Any two)**
- (a) Multiple choice questions. (Each of 01 marks) (03)
 1. The immobilized technique involving chemical method is
 (a) Covalent bond formation (b) Non Covalent bond formation
 (c) Both (a) and (b) (d) None of these
2. Which of the following reactors containing stirred tank with separate substrate inlet and reactors mix
 (a) Continuous flow stirred tank (b) Packed bed reactor
 (c) Hollow fiber reactors (d) None of these
3. In dough, starch is digested in to sugar through
 (a) glucose (b) water (c) alcohol (d) Carbon monoxide
- (b) Define chelators and its role in media preparation (03)
- (c) Define antifoam. How they are used in fermentation process? (03)
- Q.3. A) Essay type (Each of 08 marks) (08)**
 (a) Write the basic difference in continuous fermentation and batch fermentation
- Q.3. B) Answer the following questions (Any two)**
- (a) Short note (Each of 04 marks) (04)
 1. Write short note on Fermentative production of ethyl alcohol
- (b) Write short note on glutamic acid Fermentation. (04)
- (c) Describe air lift fermentor (04)
- Q.4. A) Answer the following questions.**
- (a) Short note. (Each of 02 marks) (04)
 1. How to preserve the industrially important microorganisms
 2. Define : Single cell protein, immobilized enzyme
- (b) Short note on Bioleaching (04)
- Q.4. B) Answer the following questions (Any two)**
- (a) Multiple choice questions. (Each of 01 marks) (03)
 1 Which of the following material used as a Bio-plastic
 (a) Polystyrene (b) Polypropylene (c) Polyhydroxybutyrate (d) Dextran
2. A spray dryer works on the principle of
 (a) Contact drying (b) Sublimation (c) Lyophilization (d) Adiabatic drying
3. A fed-batch Process is a:
 (a) Closed system (b) Continuous system
 (c) Biphasic system (d) Intermittently fed system
- (b) Define biodegradation and Describe Biodegradable plastic (03)
- (c) Write short note on Biofertilizers (03)