Seat No:_____ **Enrollment No:_____**

PARUL UNIVERSITY

FACULTY OF APPLIED SCIENCE

M.Sc. Summer 2018-19 Examination

Semester: 4 **Date: 03/04/2019**
Subject Code: 11201252 **Time: 2.00 pm to 4.30 pm**
Subject Name: Industrial Microbiology & Fermentation Technology **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/ Brief note (4x2) (Each of 04 marks) **(08)**
(a) What is fermentation? Explain the basic design of a fermentor with different types of fermentors

Q.1. B) Answer the following questions (Any two)
(a) Explain scale up of fermentation process **(04)**
(b) Describe selection and screening of micro-organisms through primary screening **(04)**
(c) Short note on range of fermentation processes. **(04)**

Q.2. A) Answer the following questions.
(a) Short note on recovery and purification of fermentation products. **(04)**
(b) Short note on Continuous culture **(04)**

Q.2. B) Answer the following questions (Any two)
(a) Multiple choice questions. (Each of 01 marks) **(03)**
1. Main aim of inoculum preparation is
(A) To obtain high level of viable biomass (B) To increase production
(C) To minimize contamination (D) All of the above
2. Which of the following methods is not used for the improvement of bacterial strain?
(A) Parasexual cycle (B) Conjugation
(C) Recombinant DNA technology (D) Protoplast fusion
3. In batch fermentation
(A) small-scale production is used to synthesize product
(B) substrates are added to the system all at once and runs until product is harvested.
(C) new batches of microorganisms are screened for increased yield.
(D) nutrients are continuously fed into the reactor and the product is siphoned off during the run.

(b) Short note on lyophilization **(03)**
(c) Short note on secondary screening **(03)**

Q.3. A) Essay type (Each of 04 marks) **(08)**
(a) Describe strain improvement of industrially important microorganisms.

Q.3. B) Answer the following questions (Any two)
(a) Give the difference between fed batch and continuous culture. **(04)**
(b) Explain packed bed column fermentor **(04)**
(c) Short note on production of antibiotics **(04)**

Q.4. A) Answer the following questions.
(a) Short note on alcohol fermentation **(04)**
(b) Short note on Agitation **(04)**

Q.4. B) Answer the following questions (Any two)
(a) What is diauxic growth? **(03)**
(b) Write a short note on Aeration **(03)**
(c) Short note on sterilization **(03)**