

GUJARAT TECHNOLOGICAL UNIVERSITY
ME SEMESTER II EXAMINATION – SUMMER 2017

Subject Code: 2721601**Date: 29/05/2017****Subject Name: Industrial Biotechnology****Time: 02:30 PM to 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** Discuss the steps involved in Bio-Process. **07**
- (a) **07**
- (b) What is streaking ? Explain how streaking is performed in laboratory **07**
- Q.2** (a) What is Primary Screening and Secondary Screening ? Explain. **07**
- (b) Explain Screening of Microorganisms for producing Antibiotics **07**
- OR**
- (b) Explain Screening of Microorganisms for producing Acids or Amines. **07**
- Q.3** The concentration of glucose being fermented by yeast is measured and from **07**
- (a) the data obtained, it is found that the data cannot be represented in the form $-r_A = kC_A^n$. Explain the reason. **07**
- (b) Explain what Dilution rate is. **07**
- OR**
- Q.3** **07**
- (a) Discuss manufacturing process of Citric acid **07**
- (b) Discuss the manufacturing process of Industrial Alcohol by fermentation process. **07**
- Q.4** (a) Discuss Various methods of Preserving Culture/ Inoculum. **07**
- The 'substrate concentration' versus 'specific growth rate' data were collected **07**
- for growth of *S.Cerevisiae* on glucose in a fermenter and are given below.
- (b) Calculate the Monod Constant.

S (g/l)	15	12	9	6	2.5	1.7
μ hr ⁻¹	0.34	0.33	0.32	0.30	0.22	0.18

OR

- Q.4** (a) Discuss composition of Media. **07**
- A batch fermenter was operated for the production of Alcohol from glucose **07**
- using yeast. The rate of glucose conversion is measured and the data are given below.
- (b) Find the Time taken in the batch fermenter when the concentration falls down **07**
- from 70 to 12 Km³/M³.

Cs Kmol/M3	68	54.6	33	20	12.2	7.4	4.5	2.7
-r _s	2.82	4.71	4.31	3.74	3.16	2.46	1.91	1.4

- Q.5 (a)** Explain with schematic figure the inhibition process. **07**
(b) Explain the kinetics of Substrate limiting and Product limiting inhibition. **07**

OR

- Q.5 (a)** Discuss the manufacturing process of Peniciline. **07**
(b) Discuss the instrumentation used in industrial fermenter. **07**
