

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(END SEMESTER EXAMINATION)

CLASS: MSC  
BRANCH: BT

SEMESTER : I  
SESSION : MO/19

SUBJECT: BT409 INDUSTRIAL BIOTECHNOLOGY

TIME: 3.00Hrs.

FULL MARKS: 50

**INSTRUCTIONS:**

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
  2. Attempt all questions.
  3. The missing data, if any, may be assumed suitably.
  4. Before attempting the question paper, be sure that you have got the correct question paper.
  5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) Define the various physicochemical parameters on the growth of living systems. [5]  
Q.1(b) Analyze different processes regarding advancement in microbes for high yield potential of products. [5]
- Q.2(a) Analyze the processes of liquid culturing conditions and solid state cultivation conditions. [5]  
Q.2(b) Evaluate the different stages of fermentation processes in a lab scale fermenter. [5]
- Q.3(a) Schematically present the production process of lactic acid. [5]  
Q.3(b) Illustrate the various steps for biosynthesis of a beta lactam antibiotic. [5]
- Q.4(a) Define the microbial production of glutamic acid. [5]  
Q.4(b) Explain the production process of bio-fertilizers. [5]
- Q.5(a) Comments on significance of pretreatment of agricultural biomass. [2]  
Q.5(b) Analyze the significance of algae as a source of biofuels. [4]  
Q.5(c) Propose a method for degradation of xenobiotics. [4]

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