

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

CLASS: MSC  
BRANCH: BIOTECHNOLOGY

SEMESTER : III  
SESSION : MO/18

SUBJECT: SBT3011 INDUSTRIAL BIOTECHNOLOGY

TIME: 3 HOURS

FULL MARKS: 60

**INSTRUCTIONS:**

1. The question paper contains 7 questions each of 12 marks and total 84 marks.
  2. Candidates may attempt any 5 questions maximum of 60 marks.
  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) Describe the different parameters for enhanced growth of a bacterium. [6]  
Q.1(b) Analyze various methods for improvement of bacterial strains responsible for biochemical productions. [6]
- Q.2(a) Evaluate the production process in continuous culture of reactor operation. [4]  
Q.2(b) Discuss about various features of STBR. [4]  
Q.2(c) Analyze the various aspects of nutritional resources of SSF. [4]
- Q.3(a) Discuss advantages of natural preservatives. [4]  
Q.3(b) What are the prominent characteristics for production of  $\beta$ -lactam antibiotics? [4]  
Q.3(c) Compare productivity of batch, fed batch and continuous culture systems. [4]
- Q.4(a) Comments on the process parameters for biological synthesis of lactic acid. [6]  
Q.4(b) Explain the production of vitamin -B12. [6]
- Q.5(a) Explain the biogas cycle and production of methane. [6]  
Q.5(b) Analyze the role of various factors responsible for synthesis of biological gum. [6]
- Q.6(a) Comments on significance of utilization of biomass for ethanol production. [4]  
Q.6(b) Evaluate the significance of liquid fertilizers. [4]  
Q.6(c) What are the key enzymes involved in degradation of aromatic compounds? [4]
- Q.7(a) Explain the importance of metabolic engineering with suitable example. [6]  
Q.7(b) Analyze the different aspects of safety analysis of recombinant products. [6]

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