

Code: 9A23405

R09

B.Tech II Year II Semester (R09) Supplementary Examinations May/June 2017

BIOPROCESS ENGINEERING

(Biotechnology)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 Give an account on modern applications of biotechnology industry.
- 2 Write about the following:
 - (a) Material balance equation for unsteady state.
 - (b) Product stoichiometry.
- 3 Explain the following:
 - (a) Basic energy concepts.
 - (b) Heat of reaction.
- 4 Write short notes on applications of:
 - (a) Aerobic fermentation.
 - (b) Slurry formation.
- 5 Explain the role of the following in designing the media bio reactors:
 - (a) Oxygen requirement.
 - (b) Vitamins and minerals.
- 6 Explain the following:
 - (a) Maintenance coefficient.
 - (b) Available electron balances.
- 7 Write about the following:
 - (a) Heat evolution in aerobic cultures.
 - (b) Energetic analysis of microbial growth.
- 8 Describe the following:
 - (a) Kinetics of secondary product formation.
 - (b) Luedeking-Piret model.
