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Roll No

CM-803 (GS)

B.E. VIII Semester Examination, June 2020

Grading System (GS)

Bio-process Technology

Time : Three Hours

Maximum Marks : 70

- Note :** i) Attempt any five questions.
ii) All questions carry equal marks.

1. Define Biotechnology and engineering and describe its scope for large scale production of a fermentation product.
2. Name diagram, and explain the mechanisms for three ways that DNA can be transferred from one prokaryotic cell to another.
3. Describe the process of oxygen transfer methodology from the air bubble to the cell in fermentation broths.
4. Explain Gas hold-up, mixing time and gas-liquid volumetric mass transfer coefficient of various multiple-impeller configurations.
5. How are microorganisms classified? Support your answer with suitable examples for each type and describe their characteristics.
6. Define an 'antibiotic'. What are the methods available for immobilization of whole cells?
7. Describe microbial growth curve with importance of each phase of growth and explain experimental growth law. How would you estimate specific growth rate for batch culture?

OR

Describe characteristic features of a fermentor which are needed to be considered while designing a fermentor.

8. Answer any four of the following:
 - a) Write the main difference between DNA and RNA.
 - b) Distinguish between assimilatory and dissimilatory sulfate reduction.
 - c) Explain Maximum Allowable Q₁₀ value and the minimum allowable z value.
 - d) Explain Oxygen transfer and mixing in mechanically agitated airlift bioreactors.
 - e) Compare between aerobic and anaerobic fermentation processes.
 - f) What are the different variants of continuously operating bioreactors? Explain in brief.
