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Question Paper Code:R3905

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2025

Third Semester

Chemical Engineering

R21UCH305– FERMENTATION TECHNOLOGY

(Regulations R2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Which of the following is a product of alcoholic fermentation? CO1-U
a) Lactic acid b) Ethanol c) Lactic acid d) Ethanol
2. Yeast carries out fermentation mainly to _____ CO1-U
a) Produce energy b) Absorb oxygen
c) Break down glucose d) Release carbon dioxide
3. A culture medium should ideally be _____ CO1-U
a) Inert b) Porous c) Solid d) Nutritive
4. Which of the following is a desirable characteristic for a transport medium? CO1-U
a) High nutrient content b) Selectivity
c) Ease of sterilization d) Maintaining viability of pathogens
5. Which of the following is not a primary goal of bioprocess engineering? CO1-U
a) Optimizing microbial growth conditions
b) Designing fermentation vessels
c) Developing new antibiotics
d) Scaling up production from laboratory to industrial scale
6. In a fermentation process, the primary function of a bioreactor is to: CO1-U
a) Maintain a sterile environment b) Provide nutrients to the microorganisms
c) Control temperature and pH d) All of the above

18. (a) Illustrate the importance of bioprocessing in a fermentation technology. CO3-App (16)
- Or
- (b) Evaluate the role of bioprocess engineers in managing cross-disciplinary teams and projects in the biotechnology sector. CO3-App (16)
19. (a) Analyze the impact of choosing between aerobic and anaerobic fermentation on industrial applications. Consider factors such as product yield, process efficiency and economic considerations. CO5-Ana (16)
- Or
- (b) Evaluate the advantages and limitations of aerobic fermentation in industrial applications. Consider factors such as process efficiency, cost, and scalability. CO5-Ana (16)
20. (a) Explain the principles of food fermentation, including the types of microorganisms involved. CO1-U (16)
- Or
- (b) Explain the factors that influence each stage of mushroom farming, such as substrate composition, environmental conditions, and the role of microorganisms. CO1-U (16)

