

Total No. of Question : [4]

Registration No. :

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Programme Name : Bachelor of Chemical Engineering
Regular B.Tech.Final Year (A.Y.2023-24) ESE Sem. VII Nov.2023
VII SEMESTER (2020 BATCH)
201CHL 405-Bio Chemical Engg.

Duration : [02:00 PM - 04:00 PM]

Date : 02 Dec, 2023

Day : Saturday

Marks : 50

Instructions :

1.Read questions carefully.

(Q1) All Questions are compulsory. [20.0]

(1.1) Discuss the scope for chemical engineer in biochemical engineering field. [6.0]

(1.2) What do you understand by "enzymes", Describe its characteristics and applications in biochemical field. [7.0]

(1.3) Discuss the different phases of bacterial cell growth. [7.0]

(Q2) All Questions are compulsory. [10.0]

(2.1) Describe the alcohol fermentation process in detail. [6.0]

(2.2) How the animal cells are cultivated? [4.0]

(Q3) All Questions are compulsory. [10.0]

(3.1) What are downstream processes? How they are classified? [3.0]

(3.2) Describe the details about adsorption phenomena in biochemical industries, use various interactive forces and isotherms to support it. [7.0]

OR [3.2 / 3.3]

(3.3) Baker's yeast is separated by using a continuous disc-stack centrifuge, which is operated at 6000 rpm. 50% of the cells are recovered at a feed rate of 50 L/min. Recovery of solids is inversely proportional to the flow rate at a constant centrifuge speed.

(a) What flow rate is required to obtain 90% cell recovery if the centrifuge speed is operated at 5000 rpm?

(Q4) Attempt any two out of three questions. [10.0]

(4.1) Discuss the various stages involved in bioprocess modeling. [5.0]

(4.2) What are various approaches used in bioprocess modelling, discuss them in details. [5.0]

(4.3) What do you mean by protein engineering? Discuss their objective and various techniques use in protein engineering. [5.0]
