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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2016

B.Tech 6th Semester

COURSE CODE: 16B11BT611 MAX. MARKS: 25

COURSE NAME: Downstream Processing

COURSE CREDITS: 04 MAX. TIME: 1Hr 30 Min

***Note:*** *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

1. Explain the Darcy's Law. [1]
2. List four main factors which influence the choice of C-source. [2]
3. What is the role of chelators in media? [2]
4. To increase the centrifugal effect, it is of greater advantage to use a centrifuge of the same size at a higher speed rather than using a larger centrifuge at the same speed of rotation. Justify the statement. [2]
5. List the three ways for approaching the problem of excessive foam formation in the medium. [3]
6. List the various advantages of large scale plant tissue culture over the traditional methods of plantation. [3]
7. How the rheology of the medium can be influenced by the medium component? Why it is important to be considered while medium formulation? [4]
8. What the major implications will you make during bioreactor design for the plant cells and how it is different from those which are usually made for microbial cells? [4]
9. A continuous disc-stack centrifuge is operated at 5000 rpm for separation of bakers' yeast. At a feed rate of 60 l $min^{-1}$, 50% of the cells are recovered. At constant centrifuge speed, solids recovery is inversely proportional to flow rate. [2+2]

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

   **(b)** What operating speed is required to achieve 90% recovery at a feed rate of 60 l $min^{-1}$?