

Department of Biochemical Engineering and Biotechnology
BBL740, Plant Cell Technology, RE - MINOR I

Max Marks 20

Please attempt all the questions

1. Describe the specific role & function of ethylene and gibberellins in plant metabolism. What is the effect of high or low ratio of Cytokinin / Auxin hormones in plant cell culture media? (1+1)
2. Why the plant cell features aggregation? Which growth-phase of the culture feature more aggregation? List four problems arising out of aggregation. Briefly describe two methods to control aggregation. (1+1+2)
3. Write down the principle of air lift reactor List (at least three) its advantages and disadvantages. (1+2)
4. Highlight the major characteristic features (five) of plant and microbial cell. How these features of the plant cell affect the reactor design for their mass cultivation. (2+1)
5. Briefly describe two advantages of mathematical model development in plant cell cultivation. Describe why (& how) smoothing of experimental data is done before identification of mathematical model. 1
10. Describe the protocol to find the % viability of plant cells by Fluorescein Di Acetate (FDA) vital stain. 2
6. Name three solidifying agents used in plant cell cultivation media 1
7. Why higher concentration of sucrose is used in plant cell culture media? Why ammonium or nitrate alone is not used alone as nitrogen source in plant cell cultivation? 1
8. Briefly describe the central role of NADH in the aerobic and anaerobic culture metabolism of cell. 1
9. Define (a) maximum specific growth rate (b) specific productivity 1
10. Explain why conductivity of medium decrease by the growth of plant cell ? 1