

Department of Biochem. Engg & Biotech., IIT Delhi
BEL712 (II Semester, 2015-2016), Plant Cell Technology
MINOR - I

Date: 13.2.16

(LH 410) 9.30-10.30 A.M.

Maximum Marks: 20

Please attempt all the questions

1. What are the advantages of production of bio-chemicals from plant cell /tissue culture as opposed to its extraction from the natural plant? 1
2. Fill in the blanks
est Enzyme of viable cells react with Fluorescein Di Acetate (FDA) to produce _____ color fluorescence. 1
3. _____ Enzyme of viable cells reduces Triphenyl Tetrazolium Chloride (TTC) to produce _____ color. 1
4. Conductivity of the plant cell cultivation medium has _____ relationship with the biomass growth. 1
5. Define (a) Growth index (b) Volumetric productivity (c) Specific productivity 3
6. High light the distinction between hormone and growth regulator. Describe the role of auxins and cytokinins in the plant/cell growth-propagation. Name three growth regulators commonly used in the plant cell cultivation. Cisb ethylene 3
7. What are the key major / minor nutrients (and their approx concentrations) used in the plant cell cultivation media? What criteria is kept in mind for selection of different nutrients of medium recipe? 2
8. What are the two advantages of Statistical optimization of media as opposed to conventional OVAT (one variable at a time procedure) procedure? 1
9. What is the purpose of Plackett Burman (PB) design in the design of medium recipe. Describe the role of dummy nutrients in PB trial experiments 2
10. Why (a) continuous cultivation & (b) in-situ cell retention is particularly important for the production of plant cell metabolites? 2
11. What are the two major problems in cultivation of plant cells in the bio-reactor. How are these addressed? Briefly describe the operation of inclined settler bioreactor & its specific advantage over spin filter. 3