

Department of Biochemical Engineering and Biotechnology  
Indian Institute of Technology, Delhi  
BEL712 (II Semester, 2014-2015), Plant Cell Technology

MINOR II

Date: 19<sup>th</sup> March 2015

Timing: 2.30-3:30 p.m.  
III LT-2

Maximum Marks: 10

Please attempt all the questions-

- ✓ 1. Briefly describe the principle of cell concentration measurement by NADH fluorescence probe in a bioreactor. Give three reasons describing the importance of biomass measurement by fluorescence measurement as opposed to traditional biomass measurements. 1
2. Name <sup>??</sup> four plants producing Anticancer agents 1
3. Name the abiotic elicitor giving highest response in *L. album* 1
4. Give the specific advantages of usage of Centrifugal Impeller Bioreactor (CIB) and Inner Aeration Outer Settling (IAOS) air lift bioreactor as opposed to batch cultivation in bioreactor with setric impeller. 1
5. Why is PAL activity important in podophyllotoxin production by *Linum album*. 1
6. What problems were encountered during the callus induction and suspension culture development in *P. hexandrum* 1
7. What are the specific advantages of cell recycle /retention in plant cell cultivation. Which one is preferred and why 1
8. What major contamination product is formed when the azadirachtin is extracted from the seeds of the tree. 1
9. Define precursor and its role in plant secondary metabolite production. List three different precursors used in Azadirachtin production. 1
10. What are the distinct modes of action of Podophyllotoxin in controlling the cancer growth? 1

microtubular assembly  
Topoisomerase II