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END SEMESTER EXAMINATION-2015

B.tech- IV Semester

COURSE CODE: 10B11BT412

MAX. MARKS: 45

COURSE NAME: Cell Culture Technology

COURSE CREDITS: 4

MAX TIME: 3 HRS

NOTE: All questions are compulsory.

Section A

Q1. Explain each of the following in short. [1X 5 = 5]

- Adherence is an intrinsic property of most mammalian cells. How this requirement is fulfilled under *in vitro* cell culture conditions?
- What information does one get about a cell system using "ELISPOT"?
- What do you understand by "Immuno-labeling of cells"?
- Do you find the benefits of developing double haploid plants? Why or why not?
- How somatic hybridization contributes for crop improvement programme?

Q2. Differentiate each of the following: [2X 5 = 10]

- Cellular Totipotency versus Pluripotency
- Primary culture versus Secondary culture
- Polyclonal versus Monoclonal antibodies
- Transient versus Stable cell lines
- Embryonic versus Adult Stem cells

Section B

Q1. Answer each of the following: [3X 5 = 15]

- Describe an assay in detail that can be used to gauge cellular proliferation as well as cellular death?
- Flowcytometry and Immuno-histochemistry provide complementary information about a system under study? Do you agree? Justify your answer.
- Describe a methodology to generate an immortalized cell line. How does it work?
- What are the integral elements in a mammalian expression vector? Why each of the elements is important for successful expression of a heterologous protein in mammalian cells as host?
- Explain different methods used to make single cell suspension from primary tissues to start primary cell cultures?

Section C

Q1. Answer each of the following with appropriate illustrations. [5 X 3 = 15]

- a. Cell culture is revolutionizing production of biologics with wide application? Describe production of one such product using cell culture system?
- b. Discuss **any one** of the following technological advancement in the field of cell culture covering the basic concept and where we are at present with these advancements.
 - i. Organ Culture
 - ii. Tissue Engineering
- c. Which efficient technology of genetic transformation you would like to use for producing virus resistance papaya plants? Explain in detail.