

A 302

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2005.

Fifth Semester

Industrial Bio-Technology

IB 036 — ANIMAL BIOTECHNOLOGY

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is meant by gene transfer vectors? Give an example.
2. What are the important components of a cell-freezing medium?
3. How is the trypan blue assay used to check the percent viability of cells?
4. What is meant by humanized antibodies?
5. Name at least two tests that are used to screen the human blood to derive pathogen-free blood products.
6. Give two recombinant proteins that are used as drugs to treat disease.
7. Write two merits of human recombinant vaccines over the conventional vaccines that are produced using animals or animal cells.
8. What is the purpose of a long-term study of genetically-modified animals?
9. Write a method to characterize the genotype of a cell line.
10. How does to control virus contamination in cell culture media?

PART B — (5 × 16 = 80 marks)

11. (i) Describe the optimization of cell culture environment for the production of cells. (12)
(ii) Describe a technique to enrich sperms carrying "Y chromosome"? (4)

12. (a) How are transgenic laboratory animals used in research to understand the biological principles? Explain your answers with examples.

Or

- (b) Explain the safety precautions in personnel, facility, process and raw material that should be practiced while culturing cell lines to derive biologics.

13. (a) Explain the process of producing a tissue culture-derived viral vaccine.

Or

- (b) Describe the current vectors to make transient and permanent transformations of a mammalian species with a defective gene "X".

14. (a) Explain the properties of human recombinant proteins produced using a cross species host and the same species host. Discuss the transgenic animals for xenotransplantation in the human.

Or

- (b) Describe in detail the media selection and scale-up of hybridoma cells for the production of monoclonal antibodies. Give an account of the quality assurance issues related with these processes.

15. (a) Describe the use of stem cells and embryos to develop organs. Distinguish the matrix for organ culture from cell culture.

Or

- (b) Write an essay on the assisted reproduction.
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