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M.E. / M.TECH. DEGREE EXAMINATIONS, MAY/JUNE 2017

SECOND SEMESTER

BIOTECHNOLOGY

BY16020 -ANIMAL BIOTECHNOLOGY

Q. Code: 279513

Time: Three Hours

Maximum : 100 Marks

Answer **ALL** questions

PART A - (10 X 2 = 20 marks)

1. What are genetic vaccines?
2. Name any two hormones produced by using transgenic animal.
3. Define viral vectors. Give example.
4. List the properties of retroviral vectors.
5. Write down the limitation factors in the scaling up of animal cell culture.
6. How are cell cultures stored?
7. Appraise the term knockout mice.
8. What is meant by in situ hybridization?
9. Define cloning. Write the types of cloning.
10. What is artificial insemination?

PART B - (5 X16 = 80 marks)

11. (a) (i) Narrate the production of therapeutic proteins using transgenic animals. (8)
 - (ii) Explain the production of human insulin using rDNA technology. (8)
 - (OR)
 - (b) (i) Discuss the scope of animal biotechnology in production of various biopharmaceuticals. (8)
 - (ii) Discuss in detail about the applications of animal cell culture in vaccine production. (8)
12. (a) Write short notes on the following:
 - (i) Retroviral vectors. (8)
 - (ii) Adeno associated viral vectors. (8)

(OR)

- (b) (i) Elaborate the applications of viral vectors in vaccine production and gene therapy. (8)
- (ii) Discuss the application of herpes and vaccinia virus in animal biotechnology. (8)
13. (a) (i) What are primary cell line and list their characteristic features? (5)
- (ii) Discuss the role of CO2 incubator in animal cell culture. (5)
- (iii) How will you test the cell viability? (6)

(OR)

- (b) (i) Recognize the role of mixing and aeration in scaling up process of cell culture. (7)
- (ii) Describe the hybridoma technology for the production of monoclonal antibodies. (9)
14. (a) (i) Describe the production of knockout mice with a neat sketch and add a note on its application. (8)
- (ii) Gene therapy is the therapeutic delivery of nucleic acid polymers into a patient's cell as a drug to treat disease – substantiate the statement. (8)

(OR)

- (b) (i) Discuss the principle, procedure and application of FISH. (8)
- (ii) How do you prepare a hybridization probe? (8)
15. (a) (i) Narrate the procedure for *in vitro* fertilization with a neat diagram. (8)
- (ii) Categorize the physical methods involved in gene transformation techniques in animals with clear illustrations. (8)

(OR)

- (b) (i) Demonstrate the step wise procedure for using embryonic stem cells to create transgenic mice. (8)
- (ii) Illustrate with a neat sketch and exemplify the process of embryo transfer. (8)