Exam. Code: 0909
Sub. Code: 33370

2076

B.E. (Biotechnology)

Fifth Semester

BIO-513: Animal Cell Culture and Biotechnology

Time allowed: 3 Hours Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

1. Briefly answer the following question:-
   a) Role of conditioned mediain cell culture
   b) Types of contaminations in cell culture
   c) Two features of infinite cell line
   d) Two tissue specific marker used for cell characterization
   e) Two characteristic features of pluripotentstem cells
   f) Role of split ratio
   g) Two Anti-bacterial agents
   h) Importance of stable transfection
   i) Source of protein in animal cell culture medium
   j) Important enzymes for *in-vitro* fertilization (10x1)

UNIT - I

2. a) Elaborate on the physicochemical requirements considered while formulating an animal cell culture medium. (5)
   b) Compare methocel and agarose methods with respect to efficiency, cell recovery, and viability. (5)
3. a) Describe the method of isolating cloned cells using γ-radiation, including its principle and advantages. (6)
   b) Write the sequence of steps involved in characterizing a cell line. (4)
4. a) Discuss the use of microcarriers in suspension cultures and their advantages over conventional methods. (4)
   b) Discuss in detail the cell separation techniques used for animal cell cloning. (6)

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UNIT - II

5. a) Describe the commonly used methods of DNA transfection in animal cells (chemical, physical). (7)

   b) Discuss the importance and applications of transgenic animals in agriculture. (3)

6. a) Why cells need cryopreservation? Give details of different type of storage canisters used in animal cell culture laboratory for cryopreservation. (4)

   b) Elaborate the detailed methodology involved in producing a homozygous transgenic mouse for a specific trait. (6)

7. a) Describe briefly the steps involved in the IVF procedure. (4)

   b) Compare adult stem cells and embryonic stem cells. (6)

x-x-x