

Roll No.

Total Pages : 3

758302

Jan. 2022

**M.Sc. (Biotechnology) IIIrd SEMESTER
Animal Biotechnology (MBT-302)**

Time : 90 Minutes]

[Max. Marks : 25

Instructions :

1. *It is compulsory to answer all the questions (1 mark each) of Part-A in short.*
2. *Answer any three questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART - A

1. (a) What do you understand by a cell line? (1)
- (b) What do you understand by histotypic culture? (1)
- (c) How can you define a chimeric species? (1)
- (d) Define the medical applications of transgenic animals. (1)
- (e) Define conditional knockouts. (1)
- (f) Comment over colony formation assay that allows the identification and quantification of early progenitor cells. (1)

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[P.T.O.]

- (g) What is antisense technology? (1)
- (h) What is the difference between Genetic modification and genome editing? (1)
- (i) Explain the main difference between pluripotency and multipotency. (1)
- (j) Give an introductory note on the first mammal cloned from an adult somatic cell. (1)

PART - B

- 2. (a) State the benefits and risks associated with transgenic animals. (3)
- (b) Elaborate trypsin-based method of tissue disaggregation. (2)

- 3. (a) With the help of appropriate example explain dye-based method of checking cell viability. (2)
- (b) There are certain advantages and disadvantages associated with serum free and serum containing media and majorly the choice of media depends on the type of cells/tissue to be cultured. Give an appropriate justification of the statement. (3)

- 4. Assume a gene X present in a species A and you want to express that X gene in a different species B in order to create a transgenic species. Elaborate how you will achieve this using the various biotechnological tools and embryonic stem cell mediated gene transfer technology. (5)

5. (a) How RFLP is differ from RAPD? What is the meaning of dominant and codominant marker? Give importance of RFLP in pedigree analysis. (3)
- (b) Explain Biopharming and its applications. (2)
6. (a) Define the Animal cloning and some related ethical issue with this? (2)
- (b) What is CRISPR/ Cas9 technology? Why there is so much attention on genome editing with CRISPR/ Cas9. (3)
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