

**M.Sc. BIOTECHNOLOGY
SECOND SEMESTER
PLANT & ANIMAL BIOTECHNOLOGY
MBT-201**

Duration: 3 Hrs.

Marks: 70

{ Part : A (Objective) = 20 }
{ Part : B (Descriptive) = 50 }

[PART-B : Descriptive]

Duration: 2 Hrs. 40 Mins.

Marks: 50

[Answer question no. One (1) & any four (4) from the rest]

1. What are the uses of knock-out animals that have been created in the laboratories? How pluripotency of Embryonic Stem cells can be utilized for animal biotechnology? What are adult stem cells? What is Cell-based therapy? (4+3+3=10)
2. What are the animal models in drug discovery? Why they are chosen in this process? Mention the major events in the drug discovery processes? What are the properties shared by both normal and cancer stem cells? Explain briefly. (4+3+3=10)
3. Write short notes on: (5+5=10)
a) Laminar air flow b) Continuous flow culture
4. What do you mean by organ culture? Explain different methods of organ culture briefly. (2+8=10)
5. What do you mean by hardening? Explain the logical approach of hardening and acclimatization process for successful transfer and establishment of the *in vitro* regenerated plantlets to the field under natural environment. (2+8=10)
6. What is the principle of shoot tips and meristem culture? Explain the importance of shoot tip/meristem culture in crop plants and plant as a whole. (3+7=10)

7. What are haploid plants? Explain anther culture. What are the applications of haploid plants? (2+3+5=10)
8. What is *Agrobacterium* mediated gene transfer? Explain the process of gene transfer in plants. What are its advantages and applications? (2+3+5=10)

= = *** = =

M.Sc. BIOTECHNOLOGY
SECOND SEMESTER
PLANT & ANIMAL BIOTECHNOLOGY
MBT-201

[PART-A : Objective]

Choose the correct answer from the following:

1X20=20

1. Tissue extracts are used as
 - a. natural media
 - b. artificial media
 - c. both of the above
 - d. none of the above
2. The phenomenon that generates a continuous cell line is known as
 - a. transition
 - b. transformation
 - c. translation
 - d. none of the above
3. Roux bottles are used for
 - a. monolayer culture
 - b. suspension culture
 - c. microarray culture
 - d. none of the above
4. Cell cultures contain following types of cells
 - a. stem cell
 - b. precursor cell
 - c. differentiated cell
 - d. all of the above
5. For sterilization of animal cell culture following equipment is not necessary
 - a. laminar air flow
 - b. autoclave
 - c. incubator
 - d. none of the above
6. The technique used in animal biotechnology for the rapid multiplication and production of animals with a desirable genotype is
 - a. protoplast fusion and embryo transfer
 - b. hybrid selection and embryo transfer
 - c. in vitro fertilization and embryo transfer
 - d. all of these
7. The production of complete animals from somatic cells of an animal is called
 - a. gene cloning
 - b. animal cloning
 - c. cell cloning
 - d. all of these
8. The first successfully cloned animal was
 - a. Monkey
 - b. Gibbon
 - c. Sheep
 - d. Rabbit
9. Interferons are
 - a. anti-bacterial proteins
 - b. anti-viral proteins
 - c. bacteriostatic protein
 - d. all of these
10. Recombinant proteins are
 - a. proteins synthesized in animals
 - b. proteins synthesized by transgene in host cell by rDNA technology
 - c. proteins synthesized in cells that are produced by protoplast fusion
 - d. proteins synthesized in mutated cell lines
11. Which of the following are commonly produced in animal cell cultures?
 - a. interferon
 - b. mAb
 - c. vaccines
 - d. all of these

