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

Duration: 3 Hrs.

a) Laminar air flow

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 (4+3+3=10)the laboratories? How pluripotency of Embryonic Stem cells can be utilized for animal biotechnology? What are adult stem cells? What is Cell-based therapy?
- 2. What are the animal models in drug discovery? Why they are (4+3+3=10)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.
- 3. Write short notes on: (5+5=10)b) Continuous flow culture
- 4. What do you mean by organ culture? Explain different methods of (2+8=10)
- organ culture briefly.
- 5. What do you mean by hardening? Explain the logical approach of (2+8=10)hardening and acclimatization process for successful transfer and establishment of the in vitro regenerated plantlets to the field under natural environment.
- 6. What is the principle of shoot tips and meristem culture? Explain (3+7=10)the importance of shoot tip/meristem culture in crop plants and plant as a whole.

- 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 (2+3+5=10) of gene transfer in plants. What are its advantages and applications?

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6. The technique used in animal biotechnology for the rapid

a. protoplast fusion and embryo transfer

c. in vitro fertilization and embryo transfer

b. hybrid selection and embryo transfer

d. all of these

multiplication and production of animals with a desirable genotype is

7. The production of complete animals from somatic cells of an animal

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[PART-A: Objective]	is called
Choose the correct answer from the following:	a. gene cloning b. animal cloning
1. Tissue extracts are used as	c. cell cloning
a. natural media	d. all of these
b. artificial media	
c. both of the above	8. The first successfully cloned animal was
d. none of the above	a. Monkey
2. The phenomenon that generates a continuous cell line is known a	b. Gibbon
a. transition	
b. transformation	d. Rabbit
c. translation	9. Interferons are
d. none of the above	a. anti-bacterial proteins
	b. anti-viral proteins
3. Roux bottles are used for	c. bacteriostatic protein
a. monolayer culture	d. all of these
b. suspension culture	10. Recombinant proteins are
c. microarray culture	a. proteins synthesized in animals
d. none of the above	b. proteins synthesized by transgene in host cell by rDNA
4. Cell cultures contain following types of cells	technology
a. stem cell	c. proteins synthesized in cells that are produced by protople
b. precursor cell	fusion
c. differentiated cell	d. proteins synthesized in mutated cell lines
d. all of the above	
E For storilization of animal call culture following againment is not	11. Which of the following are commonly produced in animal cell
5. For sterilization of animal cell culture following equipment is not	
necessary a. laminar air flow	a. interferon
b. autoclave	b. mAb
c. incubator	c. vaccines d. all of these
d. none of the above	u. an or triese

12. 7	Ti Plasmid is present in a. Bacillus subtilis b. Staphylococcus aureu c. Agrobacterium tumifa d. Agrobacterium rhizog	aciens	
13. \	Which group of plant groa. Gibberelic acid c. Auxin	with regulators helps in formation of roots? b. Ethylene d. Cytokinin	
14. (Cells devoid of cell walls a. Protoplast cells c. Haploid cells		
15.	T _R region of the Ti plasmi a. DNA c. Proteins	d does not contain b. RNA d. Oncogenes	
C	Which of the following is ulture media? a. Glucose c. Galactose k True or False:	used as a source of carbon in plant tissue b. Sucrose d. Maltose	
17. Zinc in plant tissue culture medium is used as enzyme cofactor and helps in chlorophyll biosynthesis. (True/False)			
18. BAP is a natural phytohormone isolated from the growing bud of plants. (True/False)			
19. Totipotency is a universal characteristic of all living cells and capable of developing into whole plants. (True/False)			
20. Gibberelins restrict cell divisions and stop visible growth of plants. (True/False)			
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UNIVERSITY OF SCIENCE & TECHNOLOGY, MEGHALAYA



Question Paper CUM Answer Sheet

[PART (A) : OBJECTIVE]

Serial no. of	the	main
Answer	shee	et

C				
Course:			<u> </u>	
Semester:		Roll No:		
Enrollment No:		Course code :		
Course Title:				
Session: 20	016.17	Date:		
Session: 20)10-17	Date:		

Instructions / Guidelines				
> The paper contains twenty (20) / ten (10) questions.				
> The student shall write the answer in the box where it is provided.				
> The student shall not overwrite / erase any answer and no mark shall be given for such act.				
> Hand over the question paper cum answer sheet (Objective) within the allotted time (20 minutes / 10 minutes) to the invigilator.				
Full Marks	Marks Obtained	Remarks		

Full Marks	Marks Obtained	Remarks
20		

Scrutinizer's Signature

Examiner's Signature

Invigilator's Signature