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Roll No.

E532

B. Sc. EXAMINATION, 2020

(Fifth Semester)

(Main & Re-appear)

(BT)

DBT303

ANIMAL BIOTECHNOLOGY-I

Time : 2½ Hours]

[Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. (a) Give reasons :
- (i) Why is enzymatic disaggregation carried out for sub-culturing the cell lines ?
 - (ii) Why is growth medium used for cell culture sterilized by filtration instead of autoclaving ?
 - (iii) All the organic substrates like cell culture bottle must be suitably treated to make them wettable and negatively charged. Why ?
- (b) Fill in the blanks :
- (i) Concentration of cells required for cryopreservation is.....
 - (ii) Optimum pH required for growth of cells in cell culture is.....
 - (iii) Viscosity in serum free media can be increased by adding.....
- (c) State whether the following statement is True *or* False :
- (i) MEM stands for maximum essential material.

- (ii) Contamination in cell culture is indicated by rapid change in pH and Cloudiness in the medium.
 - (iii) HAT medium is used in hybridoma technology for selection of hybrid cells.
- (d) Give one word for the following :
- (i) What is the working concentration of trypsin required for subculturing cells ?
 - (ii) Which cells are anchorage independent ?
 - (iii) Which amino acids is required in exceptionally high concentration in animal cell culture ?
- (e) Name any *one* equipment used to perform the following :
- (i) Media sterilization
 - (ii) Embryo transfer technology
 - (iii) Primary cell culture.

2. Diagrammatically explain the different techniques of organ culture. What are the limitations of organ culture ? Discuss their applications in the field of medical science.
3. (a) Write a short note on suspension culture and discuss their types.
(b) What are the common features of continuous cells lines ? Thousands of cell lines have been developed through human and animal tumourous tissues which are maintained using seed and working stock. Discuss.
4. (a) Briefly describe the various types of culture media used for animal cell culture. Explain the advantages and disadvantages of serum in culture media.
(b) Discuss the principle and procedure of cryopreservation of cell lines.

5. (a) Discuss the different types of contamination which can occur in cell culture and the tests which can be used for detecting their presence.
- (b) Mention the washing, drying and sterilization procedure for all the glassware and plastic ware being used in cell culture work.
6. Write short notes on the following :
- (i) Transformed cell lines
 - (ii) Growth curve of cells in culture indicating the number of cells per ml and days from inoculation
 - (iii) Substrates used for culture of anchorage dependent cells.
7. Differentiate between the following :
- (i) Enzymatic and mechanical disaggregation of tissues
 - (ii) Finite and Infinite cell lines
 - (iii) Secondary cell culture and continuous cell lines.

8. Discuss in detail the procedure to be followed for expression of cloned genes in animals using expression vectors.
9. Write short notes on the following :
 - (i) Hybridoma technology
 - (ii) *In-vitro* fertilization
 - (iii) Gene therapy, its advantages and disadvantages.