

**B.Sc. BIOTECHNOLOGY
FIFTH SEMESTER
ANIMAL BIOTECHNOLOGY
BBT-501**
[USE OMR FOR OBJECTIVE PART]

**SET
A**

Duration: 3 hrs.

Full Marks: 70

Time: 30 min.

(Objective)

Marks: 20

1X20=20

Choose the correct answer from the following:

- Which of the following molecules mediates the cell substrate interaction
a. Integrins
b. Cadherins
c. Proteoglycans
d. None of these
- Which ion requires for cell adhesion
a. Ca^{2+}
b. Na^{+}
c. Mg^{2+}
d. None of these
- Which of the following are used to minimize the production of ammonia in the cultured cells?
a. Glutamyl-alanine
b. Glutamyl-glycine
c. Both a & b
d. Alanine-glycine
- Which growth factor is giving rise to smooth muscle cells?
a. Dibutyl cAMP
b. Retinoic acid
c. Both a & b
d. None of these
- Which of the following are the most added hormone into the serum free media?
a. Insulin
b. Hydrocortisone
c. Estrogen
d. All of these
- Which growth factor is giving rise to Astrocytes
a. Fibroblast growth factors
b. Epidermal growth factors
c. Platelet derived growth factors
d. All of these
- Muscle cells can be identified by
a. Desmin
b. GFAP
c. Myosin
d. None of these
- The number of times that the culture has been sub cultured
a. Copy number
b. Split ratio
c. Passage number
d. None of these
- Which of the following promote cellular growth and differentiation
a. Polyamines
b. Protease inhibitors
c. Hormones
d. None of these

10. Which of the following is a type of animal cell culture technique?
 - a. PCR
 - b. Gel electrophoresis
 - c. Monolayer culture
 - d. Western blotting
11. Which of the following works as cell marker for hepatocytes?
 - a. Albumin
 - b. Hemoglobin
 - c. Melanin
 - d. All of these
12. Which type of animal cells can be cultured?
 - a. Only bird cells
 - b. Only mammalian cells
 - c. Only human cells
 - d. A wide range of animal cells
13. Which potential application of animal cell culture involves the production of human tissues for transplantation?
 - a. Vaccine production
 - b. Basic research
 - c. Tissue engineering
 - d. Drug discovery and development
14. Which enzymes works as tissue marker for Muscle cells
 - a. Creatine kinase
 - b. DOPA-decarboxylase
 - c. Alkaline phosphatase
 - d. Sucrase
15. Most of the continuous cell lines are sub cultured at seeding concentrations
 - a. 1×10^4
 - b. 3×10^4
 - c. 5×10^4
 - d. All of these
16. Which of the following is a most commonly added protein in Serum-free media
 - a. BSA
 - b. SAB
 - c. BAS
 - d. All of these
17. Which of the following enzyme is used for cell line detection ?
 - a. Lactate dehydrogenase
 - b. Malate dehydrogenase
 - c. Peptidase B
 - d. All of these
18. What is the temperature is maintained in warm trypsinization?
 - a. 37.5°C
 - b. 37.0°C
 - c. 36.5°C
 - d. All of these
19. Which of the following are the route of contaminations?
 - a. Cell lines
 - b. Pipettes
 - c. LAF
 - d. All of these
20. Vero cell lines are derived from
 - a. Kidney
 - b. Breast
 - c. Spleen
 - d. None of these

(Descriptive)

Time : 2 hrs. 40 min.

Marks : 50

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

1. What is primary cell culture? Describe different primary cell culture techniques with appropriate figures. 1+3+3+3=10
2. Describe details on cell cloning? 10
3. Write short note on 5+5=10
 - a) Identification of specific cell lines
 - b) Development of continuous cell line
4. What is embryonic stem (ES) cell culture? How ES cell cultures are used to produce differentiated cells 2+8=10
5. What is the importance of transgenic animals? Describe different methods for development of Transgenic animals? 2+8=10
6. Write short note on 5+5=10
 - a) Primary explant culture
 - b) Maintenance of cell culture
7. Write short note on 5+5=10
 - a) Cell Differentiation
 - b) Serum
8. Write short note on 5+5=10
 - a) Monolayer culture
 - b) Application of Cell culture

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