

**B.Sc. BIOTECHNOLOGY
SIXTH SEMESTER
ANIMAL BIOTECHNOLOGY
BBT-604**

**SET
A**

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

Time: 30 mins.

Marks: 20

(Objective)

Choose the correct answer from the following:

1 × 20 = 20

- Which of the following molecules mediates the cell substrate interaction?
 - Integrins
 - Cadherins
 - Proteoglycans
 - None of these
- Which ion requires for cell adhesion?
 - Ca²⁺
 - Na⁺
 - Mg²⁺
 - None of these
- Which of the following are used to minimize the production of ammonia in the cultured cells?
 - Glutamyl-alanine
 - Glutamyl-glycine
 - Both a & b
 - Alanine-glycine
- Which ion requires for regulate membrane potential?
 - Na⁺
 - Cl⁻
 - K⁺
 - All of these
- Which of the following are the **most added** hormone into the serum free media?
 - Insulin
 - Hydrocortisone
 - Estrogen
 - All of these
- Which is of the following is **most preferred** as energy sources in cultured cells?
 - Glucose
 - Glutamine
 - Fructose
 - All of these
- What is a cell line?
 - Multilayer culture
 - Transformed cells
 - Sub culturing of primary culture
 - Multiple growth of cells
- The number of times that the culture has been sub cultured?
 - Copy number
 - Split ratio
 - Passage number
 - None of these
- Which of the following is not a basic requirement for animal cell culture?
 - Uncontrolled temperature and pH
 - Sterile environment
 - Appropriate growth medium
 - Adequate oxygen and carbon dioxide levels
- Which of the following is a type of animal cell culture technique?
 - PCR
 - Gel electrophoresis
 - Monolayer culture
 - Western blotting

11. Vero-cell line originated from the tissue:
 - a. Kidney
 - b. Human Breast tumor
 - c. Cervical carcinoma
 - d. None 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 of the following is NOT a growth factor?
 - a. PDGF
 - b. KGF
 - c. FGF
 - d. IGF-1
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. Cell line derived by selection or cloning is referred to as:
 - a. Cell clone
 - b. Cell cluster
 - c. Cell strain
 - d. All of these
18. Which are the following factors need to be considered for replacement of the medium?
 - a. Cell concentration
 - b. Decrease in pH
 - c. Cell type & morphology
 - d. All of these
19. Which of the following are the routes of contaminations?
 - a. Cell lines
 - b. Pipettes
 - c. LAF
 - d. All of these
20. Astrocytes can be detected by:
 - a. Glial fibrillary acidic protein
 - b. Desmin
 - c. Cytokeratin
 - d. None of these

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(Descriptive)

Time : 2 hr. 30 mins.

Marks : 50

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

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|---|--------|
| 1. What are cell lines and types? Add on the selection and maintenance of cell lines. | 10 |
| 2. Describe in detail on measurement of growth parameters of cultured cells. | 10 |
| 3. Write short notes on:
a) Microinjection method of gene transfer
b) Physical means of cell separation | 5+5=10 |
| 4. What is stem cell culture? Add on its types, characterization, applications. | 10 |
| 5. What is medium and its types? Elaborate the physicochemical properties of culture media. | 2+8=10 |
| 6. What is primary cell culture? Emphasize on Enzymatic disaggregation of primary cell culture techniques. | 2+8=10 |
| 7. Write short notes on:
a) Biohazards
b) Development of serum free medium | 5+5=10 |
| 8. Write short notes on:
a) Suspension culture
b) Metabolism of cultured cells | 5+5=10 |

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