

AP-508

B.Sc. Part—III (Semester—V) Examination

BIOTECHNOLOGY (R/V)

(Animal Cell Biotechnology)

Time : Three Hours]

[Maximum Marks : 80

Note :—(1) **ALL** questions are compulsory.

(2) Illustrate your answers with suitable diagram.

1. (A) Fill in the blanks : 2
- (i) The matrix of blood is known as _____.
 - (ii) The first vaccine developed from animal cell culture was _____.
 - (iii) Animal cells are grown and maintained in _____.
 - (iv) Enzyme used for cell disaggregation _____.
- (B) Choose correct alternatives : 2
- (i) Intercostal muscles occur in _____.
 - (a) ribs
 - (b) thigh
 - (c) diaphragm
 - (d) abdomen

(ii) The major anion in the extracellular fluid is _____.

- (a) phosphate
- (b) chloride
- (c) calcium
- (d) sulfate.

(iii) Interferons are _____.

- (a) Anti bacterial proteins
- (b) Anti-viral proteins
- (c) Bacteriostatic proteins
- (d) All of these.

(iv) Animal cell cultures are used widely for the production of _____.

- (a) Insulin
- (b) Somatostatin
- (c) Mabs (Monoclonal antibodies)
- (d) Thyroxine.

(C) Answer in **one** sentence :

4

(i) What is recombinant vaccine?

Describe interleukins and its common families with suitable examples. 12

7. Explain the following :

- (a) Role of Amniotic stem cells. 4
- (b) Roller culture techniques. 4
- (c) Physical methods for obtaining synchronous culture. 4

OR

- (p) Amniocentesis risks and drawbacks. 4
- (q) Any one method of mass culture. 4
- (r) Difference between suspension culture and monolayer culture. 4

- (ii) What is cell line ?
- (iii) What is Animal Biotechnology ?
- (iv) What is cryopreservation ?

2. Explain the following :

- (a) Desmosome structure and function. 4
- (b) Role of specialized proteins. 4
- (c) Proteoglycans—types and function. 4

OR

- (p) Contribution of Alex Carrel in development of cell culture. 4
- (q) Adherens junction. 4
- (r) Connective tissue components. 4

3. Explain the following :

- (a) Classification of biohazardous materials. 4
- (b) Role of CO₂ incubator used in cell culture. 4
- (c) Flow cytometer. 4

OR

- (p) Good laboratory practices in Biotech laboratory. 4

- (q) Bacteriological incubators. 4
- (r) Types of biosafety cabinets. 4
4. Explain the following in brief :
- (a) Composition of simple growth medium. 4
- (b) Explain metabolic function of different constituents of culture medium. 4
- (c) Difference between osmolarity and buffering of medium. 4

OR

- (p) Chemical properties of Balanced Salt Solution (BSS). 4
- (q) Composition of serum free medium. 4
- (r) Role of serum in growth medium. 4
5. Describe in detail any one physical method of cell separation. 12

OR

- What are cell lines ? Explain characterization of cell lines with suitable examples. 12
6. Explain in detail the production of monoclonal antibodies and its application in medicine. 12

OR