Date 16/5/23 (Evening)

(i) Printed Pages : 3 Roll No. .....

(ii) Questions : 9

Sub. Code :	0	9	8	0
Exam. Code :	0	0	3	6

B.Sc. (Hons.) Biotechnology 4th Semester

(2053)

ANIMAL BIOTECHNOLOGY

Paper : BIOT-404-T

Time Allowed : Three Hours] **[Maximum Marks : 67**

Note :— Attempt ***five*** questions in all. Question No. 1 is compulsory. Attempt ***one*** question from each Unit.

1. (a) What is the role of scaffold in tissue engineering ?

(b) How growth can be promoted in organotypic cultures ?

(c) What is embryo transfer ?

(d) How is temperature monitored and controlled in animal cell bioreactor ?

(e) What is lipofection and its uses ?

(f) What are major safety concerns related to transgenic animals ?

(g) Enlist two bioreactors for adherent cell lines.

(h) How animal cell act as protein factory ?

(i) How cell imaging in 3D construct can be done ?

(j) How yield of insulin can be enhanced in animal cell lines ?

1.5×10

UNIT—I

2. (a) What is tissue engineering ? Give its components.

(b) Discuss applications of histotypic and organotypic constructs. 6,7

3. (a) How gas and nutrient exchange is managed in organotypic constructs ?

(b) Discuss methodology of histotypic cultures. 7,6

UNIT—II

4. (a) What is *in vitro* fertilization ? Discuss its applications in livestock.

(b) Explain role of cell as antigen presenters and as virus hosts. 7,6

5. (a) Discuss various bioreactors for animal cell line scale up.

(b) How animal cell culture based personalized vaccines are developed ? 7,6

UNIT—III

6. (a) Discuss direct gene transfer methods in animal cells.

(b) How transgenic cattle can be produced ? Give its applications. 7,6

7. (a) Write notes on :

(i) ethical issues in transgenics

(ii) selectable markers.

(b) Discuss with suitable examples role of transgenic animals in food industry and pharmaceutical industry. 6,7

UNIT—IV

8. (a) How animal cell systems can be optimized for the production of therapeutics ?

(b) Give detailed production of insulin using animal cell culture. 7,6

9. Discuss production of following through animal biotechnology :

(a) Antibiotics

(b) Human growth factors. 6,7