Reg. No										

AY 23

GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR
(GIET UNIVERSITY)

M.Sc. (Third Semester - Regular) Examinations, December – 2024

22ASPE304– Animal Biotechnology

(M.Sc.- Life Science(AS))

Time: 3 hrs | Maximum: 70 Marks

(The figures in the right hand margin indicate marks.)

PART – A **(2 x 10 = 20 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. What are the key laboratory equipments required for animal cell culture and how do they contribute to aseptic condition?	CO1	K2
b. What are the general considerations involved in the design of cell culture media.	CO1	K3
c. Outline the characteristics of transformed cells.	CO1	K2
d. Name two methods commonly used for cell separation in cell culture.	CO2	K2
e. Why is the morphology of cultured cells an essential aspect of cell characterization?	CO2	K3
f. What are the advantages of continuous cell culture over batch culture?	CO2	K2
g. Why is embryo culture an essential step in assisted reproduction techniques?	CO3	K4
h. Outline the key stages in the design of tissue engineering.	CO3	K4
i. Define transfection in the context of animal cell lines.	CO4	K3
j. Discuss one significant application of animal cell culture in biotechnology or medical research.	CO4	K2

PART – B **(10 x 5 = 50 Marks)**

Answer ***ANY FIVE*** questions	Marks	CO #	Blooms Level
2. Discuss in detail about the essential laboratory equipment and materials required for animal cell culture. Explain the application of each equipment in establishing the primary cell culture.	10	CO1	K3
3.a. Discuss the importance of balanced salt solutions in maintaining physiological conditions for cell growth.	5	CO1	K2
b. Classify and compare various types of cell culture media, highlighting their specific applications.	5	CO1	K2
4. Discuss the importance of characterization of the cultured cells. Explain various methods used for characterization.	10	CO2	K3
5.a. Outline the step-by-step procedure for the preparation of chick fibroblast in cell culture.	5	CO2	K2

b.	Explain the operating principle of continuous reactor in cell culture techniques.	5	CO2	K2
6.	Describe the step-by-step processes involved in In Vitro Fertilization (IVF), from oocyte retrieval to embryo transfer.	10	CO3	K4
7.a.	Compare and contrast the mechanisms of necrosis and apoptosis at the cellular level.	5	CO3	K2
b.	Elaborate on the principles of sperm-mediated gene transfer.	5	CO4	K3
8.	Describe the process of transfection in animal cell lines, highlighting at least three physical methods.	10	CO4	K3