QP Code: R253G060 | Reg. No | | | | | | | | | | | AY 24

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET UNIVERSITY)

M.Sc. (Third Semester – Regular) Examinations, December – 2025

24MLSPC23003 – Animal Biotechnology

(Life Science- Animal Science)

Time: 3 hrs | Maximum: 60 Marks

Answer ALL questions

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. Write the role of carbohydrate in the culture medium.	CO1	K1
b. What does LDH release indicate in cytotoxicity assays?	CO2	K2
c. What is a hybridoma?	CO3	K1
d. What is semen extender?	CO4	K2
e. Define artificial insemination (AI). Mention two advantages of AI in livestock.	CO5	K1

PART – B **(10 x 5 = 50 Marks)**

Answer ***ALL*** the questions	Marks	CO #	Blooms Level
2. a. Explain the role of sterilization methods in maintaining contamination-free cultures.	5	CO1	K1
b. Write short notes on Induction of telomerase activity in immortalization.	5	CO1	K2
(OR)			
c. Discuss the role of tumour suppressor genes (p53, pRB) in controlling cell cycle and immortalization.	5	CO1	K2
d. Define primary cell culture. Describe the steps involved in establishing and maintaining a primary culture.	5	CO1	K2
3.a. Describe the various methods and the Trypan Blue exclusion test for cell viability.	5	CO2	K2
b. Write a brief note on tissue disaggregation and seeding during chick fibroblast preparation.	5	CO2	K2
(OR)			
c. Define isotypic culture and mention its significance in studying cell–cell interactions.	5	CO2	K1
d. List common microbial contaminants in cell culture and describe their effects on cell growth.	5	CO2	K2
4.a. Write a short note on superovulation and oocyte retrieval in IVF.	5	CO3	K3
b. Explain the principle of hybridoma technology for monoclonal antibody production.	5	CO3	K2
(OR)			
c. Describe the major steps involved in In vitro fertilization.	5	CO3	K2

d.	Discuss the methods used for in vitro culture of preimplantation embryos.	5	CO3	K2
5.a.	Describe the process of cryopreserving sperm and oocytes	5	CO4	K1
b.	Write a short note on the structure of ovum in mammals and its surrounding layers	5	CO4	K1
	(OR)			
c.	Explain the method of in vitro embryo culture and the developmental stages observed.	5	CO4	K2
d.	Describe the steps involved in surgical and non-surgical embryo recovery.	5	CO4	K1
6.a.	Define molecular pharming. Explain how animals are used for producing therapeutic proteins.	5	CO5	K2
b.	Discuss large-scale cell culture systems used for producing biologicals.	5	CO5	K2
	(OR)			
c.	Explain any two methods of transfection of animal cell lines.	5	CO5	K2
d.	Explain the steps involved in constructing a recombinant viral vector for gene delivery.	5	CO5	K1

--- End of Paper ---