



**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**

**M.Sc. DEGREE EXAMINATION – BIOTECHNOLOGY**

**THIRD SEMESTER – NOVEMBER 2022**

**PBT 3501 – ANIMAL BIOTECHNOLOGY**

Date: 23-11-2022

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

**PART - A**

**Answer ALL the questions**

**I Choose the correct answer**

**(5 x 1 = 5)**

- 1 Complete animal culture media typically has \_\_\_\_\_ fetal bovine serum.  
a) 0.5%                      b) 10%                      c) 50%                      d) 75%
- 2 Living cells reduce yellow tetrazolium to  
a) propidium                      b) formaldehyde                      c) calcein                      d) formazan
- 3 Histotypic culture implies high density of \_\_\_\_\_ cell types  
a) one                      b) two                      c) three                      d) many
- 4 Simian 40 virus normally infects \_\_\_\_\_ cells inducing tumour  
a) monkey                      b) sheep                      c) insects                      d) bovine
- 5 Superiority of an F1 hybrid over both its parents in terms of yield or some other character  
a) Heterosis                      b) Cross breed                      c) In breed                      d) Out breed

**II State whether the following are true or false**

**(5 x 1 = 5)**

- 6 Ross Harrison demonstrated that animal cells require a surface to grow.
- 7 Subculturing of an adherent culture is done typically at about 5 % confluency.
- 8 Filter Well Invasion is a method to study invasiveness of tumour cells.
- 9 In SCNT, the offspring is genetically identical to the parent that donated the oocyte.
- 10 Heparin is preferably used for Semen capacitation

**III Complete the following**

**(5 x 1 = 5)**

- 11 The *GPS dish* is designed for the handling and *culture of* \_\_\_\_\_.
- 12 Roller bottles are employed for the scale-up of \_\_\_\_\_ cultures.
- 13 Over-expression of \_\_\_\_\_ factors can induce pluripotency in adult human somatic cells
- 14 \_\_\_\_\_ are viral vectors used to produce recombinant proteins primarily because they are incapable of infecting mammalian cells.
- 15 \_\_\_\_\_ hormone is normally administered to induce superovulation in cows.

**IV Answer the following within 50 words**

**(5 x 1 = 5)**

- 16 State the principle of dye-uptake viability assay with an example.
- 17 CHO cells were cultured in DMEM containing phenol red. The sample turned yellow after 12 hours. What do you infer?
- 18 What is Tissue Engineering Triad?
- 19 Define pharming.
- 20 Comment on SNP and its application

**PART - B**

**Answer the following each within 500 words.**

**(5 x 8 = 40 marks)**

**Draw diagrams wherever necessary**

- 21 a) Outline the steps involved to establish a primary culture.  
OR  
b) Differentiate between finite and continuous cell lines.

- 22 a) Give an account on cryopreservation and its significance.  
OR  
b) Write a note on CAM assay and its significance.
- 23 a) Summarise the key criteria for selecting a scaffold for tissue engineering.  
OR  
b) Briefly describe the construction of tissue engineered skin.
- 24 a) Discuss animal models in cancer research.  
OR  
b) Outline the method for the production of a transgenic fish. Add a note on its application
- 25 a) Discuss in detail about Artificial Insemination.  
OR  
b) List the applications of RNA interference technology in animal farming.

**PART - C**

**Answer any TWO of the following, each within 1500 words.**

**(2 x 20 = 40 Marks)**

**Draw diagrams wherever necessary.**

- 26 Write an essay to highlight any 4 milestones in the history of animal biotechnology.
- 27 Integrate principles in biotechnology to detect viral and mycoplasma contamination in animal cell cultures.
- 28 Review the John Moore case with reference to ethical and legal issues in Animal Biotechnology.
- 29 Give a detailed account on *in vitro* production of embryos, the challenges faced and its future prospects.

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