

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**M.Sc. DEGREE EXAMINATION – BIOTECHNOLOGY**THIRD SEMESTER – **NOVEMBER 2023****PBT3MC02 – ANIMAL BIOTECHNOLOGY**

Date: 01-11-2023

Dept. No.

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

SECTION A – K1 (CO1)**Answer ALL the questions****(5 x 1 = 5)****1 Choose the best option**

- a) Complete DMEM media is typically sterilized by the method of
 i) Autoclaving ii) Dry heat sterilization
 iii) Filter sterilization iv) Tyndallisation
- b) Which of the following is used for superovulation?
 i) Follicle stimulating hormone ii) Progesterone
 iii) Relaxin iv) Superovulin
- c) Scaffolds used for tissue engineering must be
 i) Biocompatible ii) Non-biocompatible
 iii) Non-biodegradable iv) Non-adherent
- d) How do patients feel about the possibilities of using genetics to treat cystic fibrosis and other diseases?
 i) Patients' opinions are evenly split between positive and negative
 ii) Most are supportive and optimistic
 iii) Most have no opinion
 iv) Most are supportive and optimistic
- e) A test designed to identify chromosomal abnormalities present before birth uses a long needle and withdraws fluid from the amniotic sac that surrounds the unborn baby. The test is known as:
 i) An ultra sound ii) An amniocentesis
 iii) A chorionic villus sampling iv) A blood test

SECTION A – K2 (CO1)**Answer ALL the questions****(5 x 1 = 5)****2 Answer in one or two sentences**

- a) Comment on HeLa cells.
- b) State the principle of the dye-uptake assay.
- c) Define Tissue Engineering Triad.
- d) What is pharming?
- e) Define DNA microarray.

SECTION B – K3 (CO2)**Answer any THREE of the following****(3 x 10 = 30)**

- 3 Present an overview of a typical an animal cell culture laboratory.
- 4 Graphically represent sub culturing and feeding and explain it.
- 5 Illustrate the process of somatic cell nuclear transfer. Highlight the key steps.
- 6 Explain how pharmaceutical proteins are producing from transgenic animals.
- 7 Briefly explain embryo culture.

SECTION C – K4 (CO3)

Answer any TWO of the following (2 x 12.5 = 25)

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| 8 | Compare finite and continuous cell lines. |
| 9 | A trypan blue assay was performed of a sample of HeLa cells. The total number of cells counted in four large squares was 204 cells and the number of cells that stained blue was 8 cells. Calculate concentration of cells in the given sample and the percentage viability. State the principle of the trypan blue assay and outline the procedure. |
| 10 | Recommend a method to produce pluripotent stem cells without destroying embryos. |
| 11 | Compare amniocentesis and chorionic villi sampling. |

SECTION D – K5 (CO4)

Answer any ONE of the following (1 x 15 = 15)

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| 12 | Outline the process of DNA barcoding and its significance with examples. |
| 13 | You have developed an adherent mammalian cell PBT22 that produces insulin. Recommend a method to scale-up the culture. |

SECTION E – K6 (CO5)

Answer any ONE of the following (1 x 20 = 20)

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| 14 | Review the John Moore case and highlight its ethical significance. |
| 15 | Discuss the characteristic features of embryonic stem cells and its applications. |
