



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – BIOTECHNOLOGY

THIRD SEMESTER – APRIL 2016

BT 3822 - ANIMAL BIOTECHNOLOGY

Date: 26-04-2016
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

PART – A

(20 Marks)

Answer ALL the Questions

I. Choose the correct answer

(5 x 1 = 5 Marks)

1. Nontransformed cell line does not have
a) Mortality b) Anchorage dependence c) contact inhibition d) multilayer culture
2. Which among the following is a permeable cryoprotectant
a) Sucrose b) Glucose c) DMSO d) Dextrose
3. The process in which somatic cells are induced to become pluripotent stem cells, is called
a) Dedifferentiation b) Transdifferentiation c) Reprogramming d) Differentiation
4. In lipid mediated gene delivery system which among the following are used to coat DNA
a) Anionic Liposomes b) Cationic Liposomes
c) Neutral Liposomes d) Phospholipid bilayer
5. Post-transcriptional gene silencing involves
a) miRNA+Drosha b) miRNA+Dicer c) miRNA+RISC d) miRNA

II. State whether the following are true or false, if false, give reason

(5x1=5 Marks).

6. Monolayer cells in *invitro* are held together by Cell Adhesion molecules.
7. Yeast contamination in cell lines is observed as a string of pearls
8. Every single cell in a completely cleaved morula is multipotent.
9. Dolly inherited the mitochondrial DNA from the surrogate Scottish Black face mother.
10. Artificial insemination eliminates the need of maintaining and breeding large number of bulls for a herd.

III. Complete the following

(5 x 1= 5 Marks)

11. HeLa cell lines were isolated from-----.
12. The activity of enzyme, mitochondrial succinate dehydrogenase in viable cells can be determined by--
----- assay.
13. The process by which a unipotent cell can switch to another unipotent cell type is called -----
14. In ----- transfectants, foreign DNA does not integrate in the genome but genes are expressed for a limited time.
15. Mad cow disease is caused by-----.

IV. Answer the following, each within 50 words

(5 x 1 = 5 Marks)

16. Define cell line, Mention the various types of cell lines.
17. List out various chromosome banding techniques used for cell line characterization.
18. Mention various types of stem cells based on potency.
19. Define Pharming.
20. Mention the significance of embryo sexing in assisted animal breeding .

PART B

Answer the following, each within 500 words.

(5 x 8 = 40 marks)

Draw diagrams wherever necessary

21. (a) Write about various tumorigenesis assays

OR

(b) What is a transformed cell line? Write about its characteristics.

22. (a) Write about various genes involved in differentiation and mechanisms for induction differentiation

OR

(b) What is cryopreservation? Give its applications.

23. (a) What is a stem cell? Add a note on the uses of embryonic and adult stem cells in biomedical research?

OR

(b) Write about histotypic culture and its applications

24. (a) What is sterile insect technique? Add a note on its applications.

OR

(b) How are the baculovirus vectors used for production of recombinant proteins.

25. (a) Write a note on the ethical issues faced in research.

OR

(b) Write about various interaction based techniques used for animal disease diagnosis

PART – C

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

(2 x 20 = 40 Marks)

Draw diagrams wherever necessary.

26. Discuss the characterization of the cell lines, by morphology, karyotyping, DNA profiling, fingerprinting and by analyzing DNA content.

27. Explain tissue engineering, scaffold fabrication, properties of scaffold, and the Clinical progress in tissue engineering.

28. Describe in detail the methodology adopted for production of transgenic mice, and its application in cancer and Alzheimer research.

29. Elaborate the various assisted reproduction techniques used in farm animals.
