LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

THIRD SEMESTER – **NOVEMBER 2016**

BT 3822 - ANIMAL BIOTECHNOLOGY

Date: 01-11-2016 Dept. No. Max. : 100 Marks
Time: 09:00-12:00

PART – A

Answer ALL the Questions

I. Choose the correct answer **(5 x 1 = 5 Marks)**

1. _____ media for animal cell culture was formulated for use in carbon dioxide free systems.
   a) Leibovitz b) HEPES c) DMEM d) F-12 medium
2. In MTT assay, yellow tetrazolium is reduced to purple formazan in _____ cells.
   a) all b) living c) dead d) spleen
3. Histotypic culture implies high density of _____ cell types.
   a) one b) two c) three d) many
4. The world's first Murrah water buffalo calf was cloned in _____.
   a) India b) China c) Thailand d) United States
5. RNAi is a technique to _____ expression of genes.
   a) induce b) regulate c)enhance d) inhibit

II. State whether the following are true or false **(5 x 1 = 5 Marks)**

6. Carboxymethlycellulose is added to media to increase viscosity.
7. Complete growth media typically lacks serum.
8. Pluripotent stem cells can become any tissue in the body including a placenta.
9. Copy Cat is the world's first cloned cat.
10. A region of the mitochondrial gene *COI* is used for barcoding animals.

III. Complete the following **(5 x 1= 5 Marks)**

11. Spinner flasks are used in the scale up of _____ cultures.
12. Trypan blue stains _____ cells blue.
13. Over-expression of Yamanaka factors can induce _____ in human somatic cells.
14. The gene which maintains pluripotency by preventing endoderm differentiation is_____.
15. Mad cow disease is caused by_____.

IV. Answer the following, each within 50 words **(5 x 1 = 5 Marks)**

16. Differentiate between primary and secondary cultures.
17. What is the principle of neutral red assay?
18. Define a shuttle vector.
19. Define pharming.
20. Name any two techniques employed in marked assisted selection.

PART – B **(5 × 8 = 40 Marks)**

Answer the following, each within 500 words; Draw diagrams wherever necessary.

21. (a)Explain CAM assay and organoid confrontation.

OR

(b) Discuss the applications of animal cell culture.

22. (a) Write a note on the process of cryopreservation of an animal cell line.

OR

(b) Describe the phases of cell growth in animal cell culture. Add a note on feeding and subculturing.

23. (a) What are the sources of stem cells? Outline the protocol for establishing an embryonic stem cell culture.

OR

(b) Write a note on tissue engineering.

24. (a) Discuss the use of animal models in cancer research.

OR

(b) Explain a technique to produce transgenic cattle and add a note on their applications.

25. (a) Outline the practice of Artificial Insemination in animal husbandry.

OR

(b) Discuss the ethical concerns in animal biotechnology.

PART – C **(2 × 20 = 40 Marks)**

Answer any TWO of the following, each within 1500 words; Draw diagrams wherever necessary.

26. Describe the physico-chemical properties of animal cell culture media.

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

28. Explain the methodology of somatic cell nuclear transfer. Add a note on its applications.

29. Elaborate the molecular techniques for screening infectious and genetic disorders in farm animals.

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