



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – BIOTECHNOLOGY

THIRD SEMESTER – NOVEMBER 2017

BT 3822 - ANIMAL BIOTECHNOLOGY

Date: 01-11-2017
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

PART – A

Answer ALL the Questions

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

- The T-flask is based on the tissue culture vessel designed by _____.
a) Harrison b) Carrel c) Roux d) Loeb
- _____ is a cryoprotectant commonly used for the preservation of animal cells.
a) DMSO b) FBS c) HBSS d) PBS
- Over expression of _____ can induce pluripotency in adult somatic cells.
a) hormones b) HRT c) GLUT4 d) Yamanaka factors
- Transgenic sheep producing α -1 antitrypsin was produced to treat
a) haemophilia b) emphysema c) anemia d) diabetes
- The risks of superovulation include
a) High estrogen levels b) PCOS c) weight gain d) all of the above

II. State whether the following are true or false. (5x1=5 Marks)

- Roller bottles can be employed for scale up of suspension cultures.
- A drop in the pH of the culture medium may be indicative of bacterial contamination.
- Polylactic acid is a synthetic material employed for the construction of scaffold.
- GloFish is a transgenic ornamental fish that fluoresces only under UV light.
- RNA interference is a method of gene silencing practiced in animal agriculture.

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

- A _____ is derived from a cell line because it has unique properties or markers.
- _____ is the first human immortal cell line.
- _____ is the process of cell dissociation using trypsin.
- The first _____ is called Rosie.
- _____ is the deliberate introduction of sperm into a female's uterus with the objective of achieving pregnancy.

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

- Define Hayflick limit.
- State the principle of the Trypan blue assay.
- Define a shuttle vector.
- Mention an example of using baculovirus as vectors for the production of recombinant proteins.
- What is microinjection?

PART B

Answer the following each within 500 words.

(5 x 8 = 40 marks)

Draw diagrams wherever necessary

21. (a) Outline the process of culturing fibroblasts from a chick embryo.

OR

(b) Write a note on the advantages and disadvantages of serum supplementation.

22. (a) Explain the methodology of cryopreservation and comment on its significance.

OR

(b) Write a note on feeding and subculturing adherent cell cultures.

23. (a) Briefly outline the process of embryo culture.

OR

(b) Explain tissue engineering with an example.

24. (a) Explain the method of cloning of Dolly - the sheep.

OR

(b) Write a note on Embryo Splitting.

25. (a) Explain the main steps involved in *Invitro* Fertilization. Comment on the risks of the technique.

OR

(b) Outline the key steps involved in DNA barcoding of animals.

PART – C

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

(2 x 20 = 40 Marks)

Draw diagrams wherever necessary.

26. Discuss the applications of animal cell culture. Highlight its impact on medical research.

27. Explain in detail the Trypan Blue assay and MTT assay for assessing viability of animal cells.

28. Write an essay on transgenic animals – explain any two strategies used for the production of transgenic sheep. Add a note on the application of transgenic sheep.

29. Describe in detail any two molecular techniques employed for the genetic improvement of livestock.

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