Seat Number.....

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(23)

SARDAR PATEL UNIVERSITY

B. Sc. (Genetics) – Sixth Semester Examination (CBCS)

Wednesday, 3rd April 2019

10:00 a.m. to 1:00 p.m.

US06CGEN05 : Animal Biotechnology

Total Marks: 70

Note: (1) Figures to the right indicate marks.
(2) Draw a neat and labeled diagram, wherever necessary.

Q. 1 Choose the most appropriate answer from the four alternatives given: [10]

i. **Under *in vivo* conditions only .....layer of skin produced.**
(a) Epidermis (b) Dermis (c) Both "a" and "b" (d) Epithelial

ii. **Which of the following is an example of natural media for animal cell culture?**
(a) Embryo extracts (b) Tissue extracts (c) Serum (d) All of these

iii. **Most widely used enzyme for disaggregation of animal tissue is .....**
(a) Cellulases (b) Lysozyme (c) Proteases (d) Trypsin

iv. **First artificial insemination in Mysore, India performed in .....**
(a) 1939 (b) 1949 (c) 1987 (d) 1998

v. **Capacitation process taking place in.....**
(a) Ovum (b) Sperm (c) Zygote (d) None of these

vi. **..... pronucleus is larger in size.**
(a) Female (b) Bilateral (c) Male (d) Polar body

vii. **Which one of the following hormone is used for synchronization of estrous?**
(a) Prostaglandin (b) PMSG (c) TSH (d) Insulin

viii. **.....phase is present in initial mitosis during embryonic development.**
(a) G1 (b) M (c) S (d) Both M and S

ix. **.....is a trans gene in first transgenic sheep.**
(a) Alpha 1 antitrypsin (b) Growth hormone (c) CFTR (d) Insulin

x. **Transfection mixture is exposed to a very high voltage gradient in.....**
(a) Liposome (b) Electroporation (c) Retroviral (d) Lipofection

Q.2 Answer any TEN from the following: [20]

i. Write minimal requirements for animal cell and tissue culture.

ii. Differentiate between cell clones and cell lines.

iii. Define the term confluence in cell culture.

iv. Enlist different types of insemination techniques.

v. What is ICSI?

P.T.O.

vi. What are cryoprotectants?

vii. Explain recovery of oocytes.

viii. How recipients are selected during embryo transfer technology?

ix. Explain grading of embryos.

x. Differentiate between transformation and transfection.

xi. Write applications of transgenic mice.

xii Give an overview about liposome mediated transfection.

Q.3 Give comparison between serum free media and serum containing media used for animal cell and tissue cultures. [10]

OR

Q.3 Discuss applications of animal cell cultures. Add a note on tissue engineering. [10]

Q.4 (a) Discuss the importance of cryopreservation of animal germplasm. [6]

(b) Write disadvantages of artificial insemination. [4]

OR

Q.4 (a) Discuss the importance of artificial insemination in animals. [6]

(b) Write a note on IVF. [4]

Q.5 (a) What is superovulation? Discuss factors influencing superovulatory response. [7]

(b) Why estrous synchronization is necessary? [3]

OR

Q.5 (a) Explain limitations of embryo transfer. [3]

(b) Explain embryo collection and its transfer in to recipient's animal. [7]

Q.6 **Write detail notes on the following:**

(a) Virus mediated gene transfer. [5]

(b) Applications of transgenic animals. [5]

OR

Q.6 **Explain the following:**

(a) Microinjection method. [5]

(b) Transgenic sheep and cow. [5]

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