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(A/91)

SARDAR PATEL UNIVERSITY
B. Sc. (Genetics) – Sixth Semester Examination (CBCS)
Wednesday, 6th April 2016
2:30 p.m. to 5:30 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. Which of the following is an example of natural media for animal cell culture?
 (a) Tissue extracts (b) Serum (c) Embryo extract (d) All of these
- ii. Freshly established heterogeneous and slow growing culture is called
 (a) Cell line (b) Primary cell culture (c) Organotypic culture (d) None of these
- iii. is a serum protein promotes attachment of cells to the substrate.
 (a) Transferrin (b) Albumin (c) Fibronectin (d) All of these
- iv. Cleavage pattern in mammal is
 (a) Rotational (b) Bilateral (c) Spiral (d) Transverse
- v. Capacitation process is taking place in.....
 (a) Sperm (b) Ovum (c) Zygote (d) All of these
- vi. phase is present in initial mitosis in embryonic development.
 (a) G1 (b) M (c) S (d) Both 'M' and 'S'
- vii. hormone is used for superovulation.
 (a) PMSG (b) Prostaglandin (c) β HCG (d) Both 'a' and 'b'
- viii. Ideal stage for transfection in fertilized ova is
 (a) Pronuclease (b) Polar body (c) Pronucleus (d) None of these
- ix. DEAE has charge on it.
 (a) Positive (b) Negative (c) Neutral (d) None of these
- x. Transgenic animals can be used as
 (a) Bioreactors (b) Gene farming (c) Molecular farming (d) Vaccines
- xi. Ovulation in cow takes place after of onset of estrus.
 (a) 1 hour (b) 14 days (c) 14 hours (d) 48 days

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

- i. Define term cell line. Write names of any 2 cell lines.
- ii. Enlist requirements for animal cell and tissue culture.

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- iii. Define the terms cell viability and toxicity.
- iv. Mention different types of insemination techniques.
- v. Write examples of cryoprotectants.
- vi. What is estrus synchronization?
- vii. Explain embryo splitting.
- viii. How donors are selected during embryo transfer technology?
- ix. How embryo grading are done?
- x. Write about first transgenic sheep.
- xi. Enlist different transfection methods.
- xii Give an overview about virus mediated transfection.

Q.3 Discuss significance and applications of animal cell cultures. [10]

OR

Q.3 Discuss advantages and disadvantages of serum free medias for animal cell cultures. [10]

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

(b) Write characteristics of cleavage. [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. [6]

(b) Explain synchronization of estrus in animal. [4]

OR

Q.5 (a) Explain embryo collection from donor and its transfer in to recipients. [6]

(b) Explain selection of recipients for embryo transfer. [4]

Q.6 Write detail notes on the following:

(a) Microinjection technique [5]

(b) Transgenic mice **OR** [5]

Q.6 Write detail notes on the following:

(a) Liposome mediated transfection [5]

(b) Transgenic cows [5]
