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SARDAR PATEL UNIVERSITY
MSc Genetic, Forth Semester Examination
Saturday, 2nd April 2016
02:30pm to 05:30 pm
PS04CGEN01: Animal Genetics

Total Marks- 70

- Note: i) Attempt all questions.
ii) Marks are indicated on the right hand side.

Q.1 Answer the following Multiple Choice Questions. All are compulsory

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1. Which of the following is the process of choosing parent organisms for the characteristics that is wanted in their offspring?
a. Active selection b. Reproductive selection c. Selective breeding d. Breeding selection
2. Polyploidy involves _____ sets of chromosomes.
a. Three or more b. Three c. Two d. All of these.
3. Molecular basis of BLAD is _____
a. C-T at 383bp b. A-G at 383bp c. C-A at 383bp d. None of these
4. Inherited genetic disease in cattle are most commonly found in _____.
a. Exotic cattle b. Exotic cattle and their crosses c. Zebu cattle d. All of these
5. Chemicals used for gene transfer method include _____.
a. PEG b. CaCl_2 c. Dextran d. All of the above
6. The method widely used for transforming *in vitro* animal cell culture that uses lipid vesicles or liposomes is
a. Lipotransformation b. Liposome mediated transformation c. Lipofection
d. Lipid mediated DNA transfer
7. The ability of cell to take up DNA fragment from surrounding is called
a. Transfection b. Transduction c. Transformation d. Conjugation
8. DNA into fish is injected into
a. Pronuclei b. Cytoplasm c. Both a and b d. None of these

Q.2 Attempt Any Seven of the following:

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1. Write normal chromosome number in cattle, buffalo, goat and horse.
2. Enlist various economically important traits in animals.
3. Write an overview of DUMPS.
4. Define pure breeding and selective breeding.
5. List the applications of transgenic mice.
6. What are the advantages of retro virus mediated gene transfer.
7. List the viruses that can be used as gene transfer vectors. What are the advantages?
8. What is Pronucleus?
9. What are subunit vaccines?

P.T.O

Q.3 A Enlist various chromosomal banding techniques. Describe GTG banding. 00

Q.3 B Write a note on:
a) Deletion and inversion. 03
b) Cytogenetic mapping. 03

OR

Q.3 B Explain fibroblast culturing and its harvesting. 06

Q.4A Write a note on:
a) Artificial insemination 03
b) Cryopreservation techniques 03

Q.4 B Discuss in detail BLAD. 06

OR

Q.4B Write a note on:
a) Progeny testing 03
b) Bovine citrullinaemia 03

Q.5 A Explain in detail production of transgenic cattle by pronuclear injection. 06

Q.5 B Discuss *in vitro* gene transfer techniques. 06

OR

Q.5 B Write a note on:
a) DNA Vaccine. 03
b) Live attenuated vaccine. 03

Q.6A Discuss application possibilities for gene transfer. 06

Q.6 B With the help of diagram explain microinjection mediated gene transfer. 06

OR

Q.6B Explain gene transfer through production of germ-line chimeras. 06
