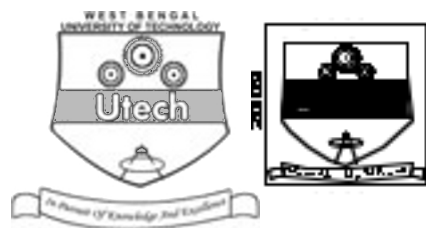


# ANIMAL BIOTECHNOLOGY ( SEMESTER - 4 )

CS/M.Sc (Genetics)/SEM-4/MSGEN(ABT)-403/09



1. ....  
Signature of Invigilator

2. ....  
Signature of the Officer-in-Charge

Reg. No.

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Roll No. of the  
Candidate

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CS/M.Sc (Genetics)/SEM-4/MSGEN(ABT)-403/09  
ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE – 2009  
ANIMAL BIOTECHNOLOGY ( SEMESTER - 4 )

Time : 3 Hours ]

[ Full Marks : 70

## INSTRUCTIONS TO THE CANDIDATES :

1. This Booklet is a Question-cum-Answer Booklet. The Booklet consists of **32 pages**. The questions of this concerned subject commence from Page No. 3.
2. a) In **Group – A**, Questions are of Multiple Choice type. You have to write the correct choice in the box provided **against each question**.  
b) For **Groups – B & C** you have to answer the questions in the space provided marked 'Answer Sheet'. Questions of **Group – B** are Short answer type. Questions of **Group – C** are Long answer type. Write on both sides of the paper.
3. **Fill in your Roll No. in the box** provided as in your Admit Card before answering the questions.
4. Read the instructions given inside carefully before answering.
5. You should not forget to write the corresponding question numbers while answering.
6. Do not write your name or put any special mark in the booklet that may disclose your identity, which will render you liable to disqualification. Any candidate found copying will be subject to Disciplinary Action under the relevant rules.
7. **Use of Mobile Phone and Programmable Calculator is totally prohibited in the examination hall.**
8. You should return the booklet to the invigilator at the end of the examination and should not take any page of this booklet with you outside the examination hall, **which will lead to disqualification**.
9. Rough work, if necessary is to be done in this booklet only and cross it through.

**No additional sheets are to be used and no loose paper will be provided**

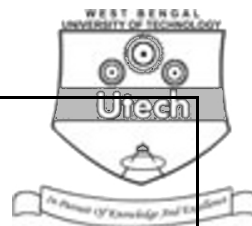
## FOR OFFICE USE / EVALUATION ONLY

Marks Obtained

Group – A								Group – B				Group – C				Total Marks	Examiner's Signature
Question Number																	
Marks Obtained																	

.....  
Head-Examiner/ Co-Ordinator/ Scrutineer

35010 ( 25/06 )



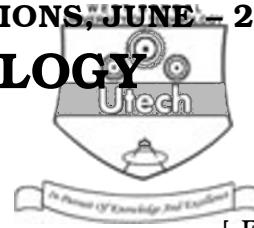
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ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE – 2009

**ANIMAL BIOTECHNOLOGY**

**SEMESTER - 4**



Time : 3 Hours ]

[ Full Marks : 70

**GROUP – A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

i) First successful embryo transfer in animal was done in

a) Cow

b) Goat

c) Rabbit

d) Mouse.

ii) Which of the following is the patent name of PMSG ?

a) Folltropin

b) Super-Ov

c) Folligon

d) FSH-P.

iii) Delayed xenograft rejection in human may occur within

a) 10-24 hrs

b) 24-48 hrs

c) 48-72 hrs

d) 72-96 hrs.

iv) Estrus synchronization in goat can be done with

a) Progesterone ear implant

b) LH ear implant

c) PMSG ear implant

d) None of these.



4

v) In vitro maturation of porcine oocytes can be done in an environment containing

- |                        |                                |
|------------------------|--------------------------------|
| a) 5% CO <sub>2</sub>  | b) 15% CO <sub>2</sub>         |
| c) 25% CO <sub>2</sub> | d) CO <sub>2</sub> never used. |




vi) Solid support for binding xenoantigen for xenoantibody removal is

- |                |                  |
|----------------|------------------|
| a) Silica      | b) Porous glass  |
| c) Polystyrene | d) All of these. |

vii) The udder cell used for creation of "Dolly" was obtained from a

- |                   |                   |
|-------------------|-------------------|
| a) Black face ewe | b) Brown face ewe |
| c) Fin Dorset     | d) None of these. |

viii) Which of the following can be used as an antifertility vaccine ?

- |                                 |                  |
|---------------------------------|------------------|
| a) Anti-LDH-C4                  | b) Anti-PP5      |
| c) Antisera against trophoblast | d) All of these. |

ix) Which of the following is not a component of a goat sperm extender ?

- |             |                        |
|-------------|------------------------|
| a) DMSO     | b) Citric acid         |
| c) Egg yolk | d) All are components. |

x) Which of the following is a cryoprotective agent for embryos ?

- |                 |                   |
|-----------------|-------------------|
| a) DMSO         | b) Hydrazine      |
| c) Formaldehyde | d) None of these. |

xi) Which of the following transgenic animals expressed the plant desaturase gene ?

- |                   |                        |
|-------------------|------------------------|
| a) Transgenic cow | b) Transgenic goat     |
| c) Transgenic pig | d) Transgenic chicken. |

xii) Half life of PMSG is

- 

- Karyotyping of blastomeres
- Detection of *H-Y* antigen
- PCR of Y-chromosome specific marker
- All are equally efficient.

**( Short Answer Type Questions )**

$$3 \propto 5 = 15$$

2. Discuss how oocyte zona pellusida (  $ZP_3$  ) can be a target for developing antifertility vaccine. 5
3. Briefly discuss the uses of transgenic animals in agriculture and medicine. 5
4. Write a short note on 'Application of Artificial insemination'. 5
5. Write a short note on sperm mediated gene transfer technique. 5
6. Discuss the application of genomics in producing superior varieties of dairy animals. 5
7. Write a short note on superovulation and hormonal control. 5



6

**GROUP – C**

**( Long Answer Type Questions )**

Answer any *three* of the following.



3 × 15 = 45

8. What do you mean by embryo transfer ? Discuss the methods of in vitro oocyte collection of domestic animals, their maturation and in vitro fertilization. Describe the method of cryo-preservation of embryos. 2 + 3 + 3 + 3 + 4
9. What is 'gene targeting' ? Discuss how gene targeting can be done in ES cells to produce chimera. Discuss the applications of gene targeting. 2 + 10 + 3
10. Discuss in detail a gene transfer method in chicken. How can you detect successful gene transfer in chicken embryos ? What are the aims of creating transgenic chicken ? 9 + 3 + 3
11. Describe a suitable method of producing transgenic pig. Can you cite an example in which an attempt has been made to produce transgenic pigs as organ donor for human xenotransplantation ? Discuss two important uses of transgenic sheep. 9 + 3 + 3
12. Elucidate estrus synchronization in beef cattle using prostaglandin with a proper experiment. Discuss invasive and non-invasive methods of embryo sexing of domestic animal. 8 + 7
13. What is an animal clone ? Discuss how the first mammalian clone was created. Discuss the molecular events that caused the cloning successful. What are the applications of animal clones ? 1 + 6 + 4 + 4

END