

CS/B.Sc.(H)/BT/SEM-4/ABT-404/2012

2012

ANIMAL BIOTECHNOLOGY

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as

far as practicable.

GROUP – A

(Multiple Choice Type Questions)

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

10 × 1 = 10

i) Integration of foreign DNA in pronucleus genome is

a) Random and in tandem

b) Random and dispersed

c) In telomere only

d) Craig

e) None of these.

ii) Male pronucleus is preferable for microinjection

because

a) It is larger than female pro nucleus

b) It provides better environment for DNA integration

c) Female pronucleus ruptures after microinjection

d) All of these.

iii) When viral DNA is integrated into host genome it is

called

a) Virion b) Provirus

c) Adenovirus d) None of these.

- iv) Protein monomers that assembled to produce spider silk has been produced in the milk of transgenic
- a) Pig b) Goat
 - c) Cow d) Mouse.
- v) Thermal stability of milk of transgenic cattle can be improved by the increased expression of
- a) κ -casein b) β -casein
 - c) lactose d) All of these.
- vi) FMDV can infect mostly
- a) the order Artiodactyla (cloven-hooved mammals)
 - b) the order primates
 - c) the order marsupialia
 - d) none of these.
- vii) The important vector for *Theileria parva* is
- a) *Rhipicephalus* spp. b) *Hyalomma* spp.
 - c) *Amblyomma* spp. d) none of these.
- viii) 'Dolly', the world's first mammalian clone was born in the year
- a) 1995 b) 1996
 - c) 1997 d) None of these.
- ix) Causative organism of foot and mouth disease is
- a) protozoa b) virus
 - c) bacteria d) none of these.
- x) Which kind of gene therapy is not practised in human ?
- a) Somatic b) Germline
 - c) Adenoviral d) none of these.
- xi) Oncogenes
- a) cause cancer

- b) resist cancer
 - c) cause Trypanosomiasis
 - d) none of these.
- xii) A surrogate mouse is a female mouse who is the
- a) biological mother of the embryo it carries
 - b) not the biological mother of the embryo it carries
 - c) never carries an embryo
 - d) none of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. Write short notes on any *two* of the following :
- a) Lipofection
 - b) Artificial insemination
 - c) Electroporation.
3. Describe the gene delivery through Adeno-associated Virus.
4. Write the etiology and distribution of the disease theileriosis.

3 + 2

5. What is a chimeric animal ? How can it be created transgenically ? 1 + 4
6. Briefly discuss the retroviral life cycle.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. What is artificial insemination (AI) ? What are its advantages and disadvantages ? Discuss in detail the method of AI. 2 + 3 + 10
8. What is DNA microinjection ? Discuss briefly the steps used

for creating transgenic mammals by the DNA microinjection.

What are the limitations of the DNA microinjection method in creating transgenic animals ? 1 + 10 + 4

9. What is animal cloning ? Discuss the technique used for creating first mammalian clone. Discuss what molecular changes are required for transforming a fully differentiated somatic cell to give rise to a complete animal. 1 + 10 + 4

10. Briefly describe the method of artificial insemination. Describe the use of artificial insemination in cattle industry. Discuss the difference between Somatic and Germline gene therapy. 7 + 4 + 4

11. What is the foot and mouth disease of cattles ? How can this disease be controlled ? What are the applications of human genetic engineering ? 7 + 3 + 5

=====