CS/B.Sc (H)/BT/SEM-4/ABT-404/2013

2013

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 : $10 \times 1 = 10$

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

a) dimethyl sulphoxide

b) hydrazine

c) formaldehyde

d) none of these.

ii) Typical volume for microinjecting DNA into mouse fertilized egg is

a) 1-2 µl b) 10-20 µl

c) 20-30 µl d) none of these.

iii) Theileriosis is transmitted by

a) air b) water

c) air & water d) vector.

iv) Pig embryo donors can be superovulated by injecting

a) PMSG b) LH

c) Progesteron d) None of these.

v) Causative organism of Coccidiosis diseases is

a) protozoa b) virus

c) bacteria d) none of these.

vi) A mutation in which gene accounts for 25% of SCID cases ?

a) CFTR

b) ZFHD1

c) Ada

d) EPO

e) FRB.

vii) What is a drawback to using AAV ?

a) AAV does not provoke antibody development

b) The virus is small and can only package small amounts of DNA

c) AAV has a wide host and tissue range

d) AAV integrates its DNA into the host genome thus causing cancer

e) None of these.

viii) Microinjection of foreign DNA in a pronucleus cause DNA integration in the genome

a) tandemly b) randomly

c) any of these d) none of these.

ix) How might mammals be cloned ?

a) homologous recombination

b) transfection with a retrovirus

c) YACs

d) nuclear transplantation

e) BACs.

x) Which of the followings was first used for gene transfer in gene therapy ?

a) Retrovirus b) Adenovirus

c) YAC d) None of these.

xi) ES cells are

a) Totipotent b) Pluripotent

c) Multipotent d) None of these.

xii) Human haemoglobin has successfully expressed in

a) Transgenic zebra fish b) Transgenic mouse

c) Transgenic goat d) Transgenic pig.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Describe the procedure of using ES cells for producing transgenic mice & micro propagation for producing transgenic chicken.

3. Write down the uses of transgenic animals in agriculture & medicine.

4. Write short notes on any *one* of the following : 1 × 5

i) Transgenic goat

ii) Transgenic pig

iii) Transgenic cow.

5. Describe the retroviral method of gene transfer.

6. What is IVF ? Explain the procedure of IVF. 1 + 4

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. What is trypanosomiasis ? Name the parasites that cause the

disease. Describe the life cycle of parasites in the arthropod vector and mammalian host. What are the control measures of this disease ? 1 + 3 + 5 + 6

8. What is coccidiosis ? In which animals this disease is common ? What is precocious development ? In which parasites it can be used ? What are the clinical signs of coccidiosis ? Describe briefly the life cycle of coccidian. Name two types of vaccination procedure against coccidiosis.

2 + 1 + 2 + 1 + 3 + 4 + 2

9. What is theileriosis ? Name the parasites that cause the disease. Describe the life cycle of parasites in the arthropod vector and mammalian host. Name four important biotechnological tools used for diagnosis of theileriosis.

1 + 3 + 5 + 6

10. What are retroviruses ? Discuss retroviruses could be used for gene transfer. How can you classify retroviruses according to their envelop proteins ? What are the benefits of retroviral gene transfer ? 1 + 10 + 2 + 2

11. What are embryonic stems cells ? How can you isolate embryonic stem cells and how they can be used for creating transgenic animals ? 2 + 13

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