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**63/1 (SEM-5) DSE2/ZOOHE5026**

**2023**

**ZOOLOGY**

Paper : ZOOHE5026

**(Animal Biotechnology)**

Full Marks : 60

Pass Marks : 24

Time : Three hours

**The figures in the margin indicate full marks for the questions.**

1. Choose the correct answer : **(any five)**  
1×5=5

(a) \_\_\_\_\_ is used to join the foreign DNA to host genome.

(i) DNA ligase

(ii) Helicase

(iii) Endonuclease

(iv) Nuclease

Contd.

(b) In 1983, \_\_\_\_\_ used recombinant DNA technology to produce insulin.

(i) Amy Sanger

(ii) Emily Lilly

(iii) Eli Lilly

(iv) Lilly Rose

(c) Human genome project was launched in the year \_\_\_\_\_.

(i) 1980

(ii) 1973

(iii) 1990

(iv) 1989

(d) The first transgenic animal "Dolly" is a \_\_\_\_\_.

(i) Mammal

(ii) Bird

(iii) Reptile

(iv) Fish

(e) A virus that infect bacteria is known as \_\_\_\_\_.

(i) bacteriophage

(ii) baculovirus

(iii) plasmid

(iv) BAC

(f) In Bt crops, insecticidal toxin producing Bt gene has been introduced from \_\_\_\_\_.

(i) pathogen

(ii) vectors

(iii) virus

(iv) bacteria

(g) 'Golden rice' is a transgenic rice, rich in \_\_\_\_\_.

(i) Lysine

(ii) Biotene

(iii) Vitamin-A

(iv) Vitamin-D

(h) \_\_\_\_\_ organism is used in the production of insulin by genetic engineering.

- (i) Cyanobacteria
- (ii) *E. coli*
- (iii) Saccharomyces
- (iv) Mycobacterium

(i) PCR technique was invented by \_\_\_\_\_.

- (i) Cohn
- (ii) Boyer
- (iii) Sanger
- (iv) Kary Mullis

(j) \_\_\_\_\_ is used as a vector for cloning in to higher organisms.

- (i) Baculovirus
- (ii) Retrovirus
- (iii) Rhizopus
- (iv) Salmonella

2. Answer the following questions : **(any five)**

2×5=10

- (a) What is transgenic animal ?
- (b) Define restriction exonuclease.
- (c) Write short note on knock out mice.
- (d) What is cloning vector ?
- (e) DNA Micro Injection.
- (f) Plasmid.
- (g) Write name of *two* transgenic fish species.

3. Write short notes on : **(any five)** 5×5=25

- (a) Write in brief about nuclear transplantation.
- (b) Explain DNA finger printing.
- (c) Write on polymerase chain reaction.
- (d) Write about the scopes of biotechnology in agriculture and medicine.
- (e) Write the steps of a PCR technique.

- (f) Write on cDNA library.
- (g) Explain western blotting technique.
- (h) Insect resistant transgenic plants.
- (i) Explain electroporation technique.

4. Answer the following questions : **(any two)**

10×2=20

- (a) What do you mean by DNA sequencing? Describe in brief the Sanger method of DNA sequencing.

2+8=10

- (b) Write on the application of transgenic animals with reference to the production of pharmaceuticals and organ production.

5+5=10

- (c) What is restriction endonuclease? Write the characteristics of type II restriction endonuclease. Write the role of restriction endonuclease in gene manipulation.

1+4+5=10

(d) Discuss the following in details :

5+5=10

- (i) BAC cloning vector
- (ii) YAC cloning vector