

Total number of printed pages-4

3 (Sem-6) ZOO M 4

2020

## ZOOLOGY

(Major)

Paper : 6·4

Full Marks : 60

Time : Three hours

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

### GROUP - A

**(Biotechnology)**

1. Answer the following as directed:  $1 \times 7 = 7$

(a) Which of the following is helpful in distinguishing DNA of one individual from another?

(i) PCR

(ii) Reverse Transcriptase

(iii) cDNA

(iv) RFLP

(b) What are primers?

Contd.

- (c) Klenow fragment is derived from :
- (i) DNA Pol I
  - (ii) RNA Pol II
  - (iii) DNA ligase
  - (iv) Reverse Transcriptase
- (d) Polyadenylation of RNA is an important criterion for production of cDNA. Which of the following statements is true ?
- (i) Polyadenylation should be at 3' end.
  - (ii) Eukaryotic mRNAs are mostly non-polyadenylated.
  - (iii) Bacterial mRNAs and organelles mRNAs are polyadenylated.
  - (iv) It is carried out by the addition of T residues after synthesis.
- (e) Which of the following is used as fusogen ?
- (i) Polyethylene glycol
  - (ii) CaMV
  - (iii) Sendai virus
  - (iv) Adenovirus
- (f) What is cell line ?

(g) Name the cell line of the human cervical carcinoma.

(i) HeLa

(ii) WISH

(iii) L

(iv) MRC-5

2. Write very brief answers of the following :

$2 \times 4 = 8$

(a) State the application of PCR.

(b) Why is gene tagging done ?

(c) Differentiate between adherent culture and suspension culture.

(d) What are shuttle vectors ?

3. Answer **any two** of the following :

$5 \times 2 = 10$

(a) Write a note on different types of restriction enzymes.

(b) Describe the particle gun method.

(c) State the bioethical issues in animal culture.

(d) Write on cell harvesting techniques.

4. Answer **any two** of the following :

(a) What is gene cloning? Write in detail, the process of gene cloning.  $2 + 8 = 10$

(b) Describe in some detail, the various strategies for the integration of DNA inserts into the vector. 10

(c) Describe the various types of artificial culture media used for cell culture. Explain the role of serum in the culture medium and discuss its disadvantages. 4+3+3=10

(d) Discuss the role of biotechnology in health care giving suitable example to support your views. 10

### GROUP - B

#### ( *Bioinformatics and Computer Application for Biologists* )

5. Write short note on **any one** of the following : 5

(a) MICROSOFT WINDOWS

(b) Advantages and disadvantages of Cloud Computing.

6. What is Bioinformatics ? Why is bioinformatics regarded as the brain of biotechnology ? 2+8=10

**Or**

What are programming languages ? Give examples of various programming languages used. 2+8=10