

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

- (g) Name the cell line of the human cervical carcinoma.
- HeLa
  - WISH
  - L
  - MRC-5

2. Write very brief answers of the following : 2×4=8
- State the application of PCR.
  - Why is gene tagging done ?
  - Differentiate between adherent culture and suspension culture.
  - What are shuttle vectors ?
3. Answer **any two** of the following : 5×2=10
- Write a note on different types of restriction enzymes.
  - Describe the particle gun method.
  - State the bioethical issues in animal culture.
  - Write on cell harvesting techniques.
4. Answer **any two** of the following :
- 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