B.Sc. 5th Semester (Honours) Examination, 2019 (CBCS)

Subject : Zoology

BU

Paper : DSE-T1

(Animal Biotechnology)

Time : 2 Hours **Full Marks : 40**

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

1. Answer *any five* questions: 2×5=10

(a) 'Phagemids are modified plasmids'.– Justify.

(b) Why are 'Restriction enzymes' called so?

(c) What are the characteristics of YAC vector?

(d) What is solid phase DNA microarray?

(e) What materials do you need to produce c-DNA library?

(f) What information can you decode about the mother organism from the name '*Eco-RI*'?

(g) What is reversible electroporation?

(h) A clone has 'variant form' of some proteins from its 'nuclear donor'.– Why?

Group-B

2. Answer *any two* questions: 5×2=10

(a) What is a plasmid? Mention the characters of a suitable cloning vector with a diagram. 1+4=5

(b) A scientist has isolated very few copies of DNA from an organism. He finds it difficult to perform all necessary experiments with that 'little' amount of DNA. What technique can he use to solve his problem? Give a word diagram of the procedure of the technique you would recommend. 1+4=5

(c) How can you prove whether a 'gene' has been 'knocked out' or not? 5

(d) "Restriction sites of type-II restriction endonucleases are usually palindromic"– explain. Give a short note on type-II restriction endonucleases. 2+3=5

Group-C

3. Answer *any two* questions: 10×2=20

(a) What are the materials/chemicals needed for DNA sequencing by 'Sanger' method? How many separate reaction mixtures are needed for this technique? Why? In which direction the final gel is read? Why? 4+1+2+1+2=10

(b) Describe the method of SCNT. When retroviral method is used in gene transfer? Add a note on gene transfer in molecular pharming. 5+2+3=10

(c) What is the significance of He La cells in development of 'animal cell culture'? Why are cells named so? How can you define 'cell culture'? What is 'secondary cell culture'? What is the advantage over 'primary cell culture'? 3+1+2+2+2=10

(d) Write short notes on *any two*: 5+5=10

(i) Expression vector

(ii) Construction of cDNA library

(iii) DNA finger printing