2025

(FYUGP)

(5th Semester)

ZOOLOGY

(MAJOR)

Paper Code : ZOO/C–11 (T)

(Molecular Biology)

Full Marks : 75
Pass Marks : 40%

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. With proper illustrations, explain Hershey and Chase's experiment that proves DNA as the genetic material. 15

Or

Discuss the replication of telomeres with proper diagrammatic representations.

2. Explain transcription unit. Discuss the mechanism of transcription in eukaryotes with proper illustrations. 2+13=15

Or

Discuss RNA polymerase in both prokaryotes and eukaryotes and expound on their structure and functions. Give the schematic representation for both. 15

3. Write notes on the following : 7½×2=15

(a) Degeneracy of genetic code

(b) Inhibitors of protein synthesis

Or

What is translation of proteins? Give the differences between prokaryotic and eukaryotic translation. 2+13=15

4. Explain splicing mechanism with proper diagrams. Add a note on alternative splicing. 10+5=15

Or

Elaborate on the processing of tRNA with illustrations. Add a note on exon shuffling. 10+5=15

5. Explain the principles of transcriptional regulation using the example of trp operon with diagrams wherever necessary. 15

Or

Write notes on the following : $7\frac{1}{2} \times 2 = 15$

(a) Enhancers and activators in eukaryotic transcription

(b) Repressor and silencer in eukaryotic transcription

★ ★ ★