

2025**M.Sc.. 2nd Semester Examination, 2025****ZOOLOGY****(Molecular Biology)****PAPER – ZOO 206***Full Marks: 25**Time : 1 Hours**The Figures in the right-hand margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.**Illustrate the answers wherever necessary.*

Answer any two questions

2 x 2

- 1 Define cryptogene. Give an example
- 2 What is the structure of E. coli replicator?
- 3 Mention the function of TFIID in eukaryotic transcription ?
- 4 Write a note on polymerase switching

Answer any two questions

2X 4

5. Based on the given data below, fill in the level of enzyme activity with an explanation.

Genotype	β -galactosidase		permease	
	-inducer	+inducer	-inducer	+inducer
$i^+ o^+ z^+ y^+$	0.20	200	0.20	200
$i^- o^+ z^+ y^+$	-	-	-	-
$i^+ o^c z^+ y^+$	0.50	200	0.50	200
$i^- o^c z^+ y^- /$	-	-	-	-
$F' i^+ o^+ z^+ y^+$	-	-	-	-
$i^- o^c z^- y^+ /$	-	-	-	-
$F' i^+ o^+ z^- y^-$	-	-	-	-

6. How does the telomere-binding protein regulate the yeast telomere?
7. How is the loaded helicase activated during eukaryotic DNA replication?
8. How is the CNG (cdk-Mdm-GINS) complex formed in the yeast replication fork?

Answer one question

1 X 8

9. Explain two pathways of gene silencing by miRNA with a diagram
10. Describe the process of *E. coli* initiation of DNA replication with the help of a model studied by you.

Internal Assessment: 05 Marks