PG/IIS/ZOO/203.1&203.2/25
(2023-24)

M.Sc. 2nd Semester Examination, 2025

ZOOLOGY

PAPER – ZOO-203.1&203.2 (2023-24)

Full Marks : 50

Time : 2 hours

Answer **all** questions

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

PAPER – ZOO-203.1

(*Molecular Biology*)

[Marks : 20]

1. Answer any *two* questions from the following : 2×2

(*a*) Find out the differences between COX II DNA and RNA.

(*b*) What is the structure of Saccharomyces replicator ?

(*c*) Why lac^{-d}/lac^{+} operon are synthesized constitutively ?

(*d*) What is the function of TFII H in eukaryotic transcription ?

2. Answer any *two* questions from the following : 4×2

(*a*) Based on the data given blow fill in the level of enzyme activity with explanation.

genotype	β-galactosidase		permease	
	–inducer	+inducer	–inducer	+inducer
$i^+ o^+ z^+ y^+$	0.1	100	0.1	100
$i^- o^+ z^+ y^+$	—	—	—	—
$i^- o^+ z^- y^+$	—	—	—	—
$i^+ o^c z^+ y^+$	0.25	100	0.25	100
$i^- o^c z^+ y^-$ / $F'i^+ o^+ z^+ y^+$	—	—	—	—
$i^- o^c z^- y^+$ / $F'o^+ z^- y^-$	—	—	—	—

(*Continued*)

(*b*) How CMG (cdk-Mdm-GINS) complex is formed at replication took in *S. cerevisiae* ?

(*c*) How *E.coli* DNA replication is regulated by DNA A. ATP levels and seq A.

(*d*) Explain the process of silencing of translation by miRNA ?

3. Answer any *one* question from the following : 8×1

(*a*) Explain the role of RNAi machinery in heterochromation formation and gene silencing.

(*b*) Wha do you mean by end replication problem in mammals ? How human telomere is regulated ?

PAPER — ZOO-203.2

(*Parasitology*)

[Marks : 20]

4. Answer any *two* questions of the following : 2×2

   (*a*) Distinguish between commensalism and mutualism write example.

   (*b*) What is glycocalyx ? Mention its functions.

   (*c*) Write the clinical features of cerebral malaria.

   (*d*) What do you mean by 'Parasitoid' and 'Hyperparasite' ? Explain with examples.

5. Answer any *two* questions of the following : 4×2

   (*a*) Write the name and functions of the glands found in the cercariae of blood fluke.

   (*b*) Enumerate the structure and composition of cestode tegument with labelled diagram.

(*Continued*)

(*c*) Schematically represent the binary fission and conjugation process that occurs in *Balantidium*. Mention its pathogenicity.

(*d*) Describe the life cycle of sand fly. State the control measures of disease transmission by the sand fly. $2\frac{1}{2}+1\frac{1}{2}$

6. Answer any *one* question of the following : 8×1

(*a*) Describe the life cycle, pathogenecity and prophylaxis of *Paragonimus westermani*. $5 + 2 + 1$

(*b*) What are the common symptoms of the acute phase of lymphatic filariasis ? How does microfilaria of *Wuchereria* differ from microfilaria of *Brugia* ? What are biological incubation period and clinical incubation period ? $3 + 3 + 2$

[Internal Assessment — 10 Marks]