

ZOOLOGY (Paper II)

Time Allowed : Three Hours

Maximum Marks : 300

QUESTION PAPER SPECIFIC INSTRUCTIONS

(Please read each of the following instructions carefully before attempting questions)

There are EIGHT questions divided in two Sections.

Candidate has to attempt FIVE questions in all.

Question Nos. 1 and 5 are compulsory and out of the remaining, any THREE are to be attempted choosing at least ONE question from each Section.

The number of marks carried by a question/part is indicated against it.

Wherever any assumptions are made for answering a question, they must be clearly indicated.

Word limit in questions, wherever specified, should be adhered to.

SECTION 'A'

1. Answer any FOUR, each in around 150 words:— 15×4=60
- (a) Distinguish between allopatric and sympatric speciation.
 - (b) Explain the functional differences between Shine-Dalgarno sequence and Pribnow sequence.
 - (c) Comment on phenylketonuria as a genetic disorder.
 - (d) Distinguish between classical taxonomy and molecular taxonomy.
 - (e) Distinguish between Darwinism and neo-Darwinism.
2. (a) Explain the structure of the basic level of organization of eukaryotic genetic material. Name two higher levels of organization. 20
- (b) Which organelle is well developed in a secretory cell? Describe the structure to justify its function. 20
- (c) List the components of prokaryotic translation initiation complex. Explain how it is assembled to initiate translation. 20
3. (a) RNA processing is a characteristic of eukaryotes only and not of prokaryotes. Explain this with reference to gene organization. 20
- (b) Enunciate the Mendelian laws of inheritance. Would Mendel's laws hold good under all conditions? Justify your contention. 20
- (c) What are "suicide bags" of cells? Briefly describe their structure and function. 20
4. (a) What are "Darwin's Finches"? Explain their significance in Evolution. 20
- (b) Critically comment on the justification of biodiversity studies. 20
- (c) Write a short note on Australopithecus. 20

SECTION 'B'

5. Write short notes on any FOUR of the following in about 150 words each:— 15×4=60
- (a) Cyclic-AMP as a second messenger.
 - (b) Types and functions of mammalian salivary glands.
 - (c) Interactions that stabilize the secondary and tertiary structure of proteins.

	(d)	Excitatory and inhibitory neurotransmitters.	
	(e)	Grey crescent.	
6.	(a)	What are high energy compounds? Substantiate their role in biological systems.	20
	(b)	Classify L-amino acids on their structural basis. What is the biochemical importance of sulphur containing amino acids?	20
	(c)	Give a schematic representation of thyroxin biosynthesis.	20
7.	(a)	Describe briefly Mitchell's chemi-osmotic hypothesis for ATP synthesis.	20
	(b)	Write briefly on the control and regulation of renal excretion with reference to mammals.	20
	(c)	Write a note on female sexual cycles.	20
8.	(a)	Explain the changes undergone by sperm in the female reproductive tract of mammals.	18
	(b)	Define teratogenesis and write a note on "Thalidomide Syndrome".	18
	(c)	Write a note on homeotic genes in the control of early development.	24