



**B.Sc. (Part-I), Examination 2015**  
**Model Paper A (Zoology)**  
**Paper -II (Cell Biology and Genetics)**

Time Allowed: 3 Hours  
33

Max. Marks:

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**Part -I**

**All questions are compulsory :-**

**1. Answer briefly**

- a) Mention four differences between prokaryotic and eukaryotic ribosomes.
- b) Mention four important functions of Golgi complex.
- c) Mention the role of single stranded binding proteins in DNA replication.
- d) Differentiate between exon and introns.
- e) What is the significance of meiosis?
- f) What is trisomic and monosomic condition?
- g) Mention the possible type of genotype of ABO blood group.
- h) Explain duplicate recessive epistasis with suitable example.
- i) Explain the structure of cilia.

**Part -II**

**Attempt 4 questions in all , selecting at least one from each section. All questions carry equal marks:**

**Section -A**

2. (a) Write a note on osmosis and diffusion  
(b) Write a note on virus
3. Write notes on following:-
  - (a) Ribosome
  - (b) Centriole
4. Describe the following :-
  - (a) Active Transport
  - (b) Structure of Cilia

**Section -B**

5. Write notes on the following :-
  - (a) Nucleosome concept
  - (b) Giant Chromosome
6. Describe the process of replication of DNA in eukaryotes
7. Write notes on :-
  - (a) Characteristics of triplet code
  - (b) Transcription

Section -C

8. Write notes on the following :-
  - (a) Incomplete dominance
  - (b) Monohybrid and dihybrid cross
9. Write notes on the following :-
  - (a) Linkage
  - (b) Chromosome mapping
10. Write notes on :-
  - (a) Multiple gene inheritance
  - (b) Cytoplasmic inheritance



**B.Sc. (Part-I), Examination 2015**  
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33

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**Part -I**

**All questions are compulsory :-**

**1. Answer briefly:**

- a) What is the difference between active and passive transport?
- b) What are the main functions of endoplasmic reticulum?
- c) Explain the structure of ribosomes.
- d) Give two main differences between DNA and RNA.
- e) Mention the regions of mRNA.

- f) What are lampbrush chromosomes?
- g) Mention important features of metaphase stage of mitosis.
- h) What is crossing over?
- i) Briefly explain cytoplasmic inheritance.

## **Part -II**

**Attempt 4 questions in all , selecting at least one from each section. All questions carry equal marks:**

### Section -A

- 2. Describe the fluid mosaic model of plasma membrane with the help of suitable diagram.
- 3. Differentiate between:
  - i. Prokaryotic and Eukaryotic cell.
  - ii. Passive and Active transport.
- 4. Briefly comment on:
  - i. Cytoskeleton
  - ii. Golgi Complex

### Section -B

- 5. Describe the structure and functions of nucleus and nucleolus.
- 6. Discuss in detail the enzymes involved in DNA replication.
- 7. Comment upon:
  - i. Cell cycle
  - ii. Characteristics of genetic code.

### Section -C

- 8. Briefly discuss Euploidy and Aneuploidy.
- 9. What are Multiple Alleles? Discuss with reference to ABO blood group in humans.
- 10. Describe Mendel's Law of Inheritance.