

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2023  
(Second Semester)

Branch – BOTANY

**CELL AND MOLECULAR BIOLOGY**

Time: Three Hours

Maximum: 50 Marks

**SECTION-A (5 Marks)**

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

1. Ribosomes are produced and assembled in
  - (i) mitochondria
  - (ii) Endoplasmic reticulum
  - (iii) nucleolus
  - (iv) Golgi apparatus
2. DNA synthesis takes place during \_\_\_\_\_ phase.
  - (i) M phase
  - (ii) G<sub>2</sub> phase
  - (iii) G<sub>1</sub> phase
  - (iv) S phase
3. The process of DNA replication is affected by an enzyme known as
  - (i) Mutase
  - (ii) Ligase
  - (iii) Polymerase I
  - (iv) Ribonuclease
4. The process by which protein synthesis from genetic code occurs is best described by
  - (i) transcription
  - (ii) translation
  - (iii) replication
  - (iv) reproduction
5. Which of these is correct about data mining?
  - (i) It is a procedure in which knowledge is mined from data.
  - (ii) It involves processes like Data Transformation, Data Integration, Data Cleaning.
  - (iii) It is a procedure using which one can extract information out of huge sets of data.
  - (iv) All of the above

**SECTION - B (15 Marks)**

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

6. a. Show the functions of ribosomes.  
OR  
b. Illustrate structure of mitochondria with a neat diagram.
7. a. Sketch the structure of endoplasmic reticulum.  
OR  
b. Explain the special types of chromosomes.
8. a. Discuss about the structure of DNA.  
OR  
b. Analyze the types of RNA.
9. a. Illustrate the lac Operon model.  
OR  
b. State the difference between translation and transcription.
10. a. Explain the structural genomics.  
OR  
b. Evaluate the significance of proteomics.

Cont...

**SECTION -C (30 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

11. a. Elucidate the structure and functions of nucleus.  
OR  
b. Construct the structure of cell wall with suitable diagram.
12. a. Compare the structure of cilia and flagella.  
OR  
b. Categorize the steps in Meiosis.
13. a. Analyse the chemical composition of gene.  
OR  
b. Assess the nucleosome concept.
14. a. Determine the regulation of gene expression in prokaryotes.  
OR  
b. Interpret the post transcriptional modification.
15. a. Elaborate the classification of proteomics.  
OR  
b. Design the homology modelling.

Z-Z-Z

END