

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2018  
(First Semester)

Branch - **BIOTECHNOLOGY**

**MOLECULAR GENETICS**

Time: Three Hours

Maximum: 75 Marks

Answer ALL questions  
ALL questions carry EQUAL marks (2 + 5+ 8)

- 1 a What is meant by C value?  
b What are Pseudogenes? Discuss their evolutionary significance.  
c Tabulate the properties of different structural forms of DNA.  
OR  
d What is H banding?  
e Compare and contrast euchromatin and heterochromatin? Note on Methylation.  
f Discuss the various types of repetitive DNA sequences.
- 2 a Draw and label the parts of replication fork.  
b What are Nucleosomes? Sketch the higher order of packaging of eukaryotic chromosome.  
c Discuss at length the significance of histone methylation, acetylation and deacetylation.  
OR  
d Mention some antibiotics that arrest replication.  
e With a neat sketch, explain the structure and types of DNA polymerases.  
f Elaborate on the mechanism of eukaryotic replication.
- 3 a What are Rec A proteins?  
b What is translesion synthesis? Discuss.  
c Elaborate on the Homologous recombination.  
OR  
d What is meant by Double strand breaks? What is their significance?  
e Discuss the mechanism of repair of DSB's.  
f With neat sketches explain SOS repair and Mismatch repair.

- 4 a What are CpG islands?
- b Explain the features of LINES and SINES.
- c Explain the mechanism of r RNA processing.  
OR
- d What are Ac/Ds elements?
- e How are Si RNA's generated? What are their roles?
- f Discuss the mechanism of Transcription with special reference to Initiation in detail.
- 5 a Draw the structure of eukaryotic ribosome.
- b Discuss the various post translational modifications.
- c How does phage lambda establishes the lysogenic cycle?  
OR
- d What are proto oncogenes? Give examples.
- e Elaborate on the possible role of BRCA genes in Breast Cancer.
- f Discuss the novel approaches to cancer targeting with special reference to Breast Cancer.

Z-Z-Z

END