Roll No. .....

(07/21-II)

13636

M. Sc. EXAMINATION

(For Batch 2018 & Onwards)

(Second Semester)

BOTANY

BOT-203

Molecular Biology

Time : Three Hours *Maximum Marks :* 70

Note : Attempt any *Four* questions from the four Units, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

1. Answer the following questions (2 marks each) : 5×2=10

(i) Differentiate between DNA polymerase I and II.

(ii) Write about the different helical forms of DNA.

(iii) What is the role of DNA methylation in regulating gene expression ?

(iv) What is attenuation and what is its significance ?

(v) What are antibiotic inhibitors ?

Unit I

2. Discuss about the different types of DNA polymerases. Describe their function in DNA replication. 7+8

3. What is the difference in structure between DNA and RNA ? Discuss the chemical and thermodynamic properties of nucleic acids. 5+10

Unit II

4. Which RNA polymerases operate in eukaryotes ? Discuss transcription in eukaryotes. 5+10

5. What is a spliceosome ? Discuss the process of RNA splicing in detail. 3+12

Unit III

6. Discuss in detail post-translational modification in eukaryotes. 5+10

7. What is protein targeting ? Discuss, how proteins are translocated across membranes. 5+10

Unit IV

8. Write short notes on the following : 15

(i) Site specific recombination

(ii) Catabolic repression.

9. What is the significance of gene regulation ? Discuss the negative regulation of the lac operon. 3+12