

**B. TECH
(SEM III) THEORY EXAMINATION 2017-18
GENETICS & MOLECULAR BIOLOGY**

Time: 3 Hours
Total Marks: 70
Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

- 1. Attempt all questions in brief. 2 x7 = 14**
- a. Summarize what is central dogma tells us about the role of DNA, RNA & proteins.
 - b. Differentiate between alleles and genes.
 - c. Define apoptosis.
 - d. What is locus?
 - e. What is the role of DAM methylase in DNA repair?
 - f. Explain tautomerization.
 - g. What are kappa particles?

SECTION B

- 2. Attempt any three of the following: 7x 3 = 21**
- a. What is wobble hypothesis? Explain the process of post translational modifications.
 - b. Prove with suitable example that DNA works as a hereditary material.
 - c. What is recombinant DNA technology? Explain the role of enzymes involved in this process.
 - d. Explain extra chromosomal inheritance with suitable examples.
 - e. Describe different DNA repair mechanisms.

SECTION C

- 3. Attempt any one part of the following: 7x 1=7**
- a. Prove that DNA replication is semi conservative in nature? Explain the role of enzymes involved in this process.
 - b. Explain the steps of protein synthesis- initiation, elongation and termination in detail.
- 4. Attempt any one part of the following: 7 x 1=7**
- a. Give a detailed note on cell cycle regulation.
 - b. State the Mendel's law of inheritance with suitable examples.
- 5. Attempt any one part of the following: 7x 1=7**
- a. Explain the initiation, elongation and termination events in prokaryotic DNA replication.
 - b. Discuss about genome organization of mitochondria and chloroplast.
- 6. Attempt any one part of the following: 7 x 1=7**
- a. What is linkage and linked genes? Explain them with suitable diagram.
 - b. Explain sex determination in drosophila.
- 7. Attempt any one part of the following: 7 x 1=7**
- a. What are genetic codes? Give the properties of genetic code.
 - b. What is promoter? Explain the process of transcription in eukaryotes.