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Roll No. 1 6 1 7

Paper Id: 151431

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

Total Marks: 70

Time: 3 Hours

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

2 x 7 = 14

1. Attempt *all* questions in brief.

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

7x 3 = 21

2. Attempt any *three* of the following:

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 process of transcription in eukaryotes.