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Paper Code: BT-13

M.TECH. (Pre-Ph.D.)
(SEM-I) ODD SEMESTER EXAMINATION 2016-17
GENETICS, MOLECULAR BIOLOGY AND IMMUNOLOGY

[Time: 3 hrs.]

[Max. Marks: 100]

Note- Attempt All Questions.

1. Attempt any **TWO** parts of the following:- (10x2 = 20)

- (a) Give an account of Mendelian laws with suitable punnet square.
- (b) What are the individualities of a DNA molecule that makes it a model genetic molecule?
- (c) Innate and adaptive immunity act in cooperative and interdependent ways to protect the host. Discuss the collaboration of these two forms of immunity.

2. Write short note on any **FOUR** of the following:- (5x4 = 20)

- (a) Humoral immunity
- (b) Replication
- (c) Mutation
- (d) Translation
- (e) DNA vaccines
- (f) mRNA processing

3. Attempt any **TWO** parts of the following:- (10x2 = 20)

- (a) Differentiate between genome organization of prokaryotes and eukaryotes
- (b) Explain several stage of transcription
- (c) Is polyploidy adventitious to organisms ? Explain it with definition.

4. Answer any **TWO** parts of the following:- (10x2 = 20)

- (a) Describe the types of mistakes that occur in DNA
- (b) Describe arrangement of DNA molecule with appropriate illustration
- (c) Give a summary on genetic code

5. Attempt any **TWO** parts of the following:- (10x2 = 20)

- (a) Explain central dogma. In case of certain viruses RNA is the genetic material. Explain the mechanism as to how RNA will be used to multiply itself.
- (b) Give a detailed account on immunoglobulins with their structure and functions.
- (c) Explain the two types of purified molecules that are currently used as vaccines.