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DATE: **16** **-04-2018 (9 AM)**

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| **ST. JOSEPH’S COLLEGE (AUTONOMOUS), BANGALORE-27** |
| **B.Sc. MICROBIOLOGY- IV SEMESTER** |
| **SEMESTER EXAMINATION: APRIL 2018** |
| **MB 415 – Microbial Genetics and Molecular Biology** |

(For supplementary candidates)

Do not write the register number on the question paper

Please attach the question paper along with the answer script.

**Time: 1 1/2 hrs Max. Marks - 35**

**This paper contains ONE printed page and THREE parts**

**I. Answer any FIVE of the following 5x2=10 marks**

1. List any four world transforming discoveries in genetics.
2. Define semi conservative replication.
3. What mutations are repaired by Nucleotide excision repair?
4. Draw a neat labeled structure of IS transposable element.
5. What is the key difference between generalized and specialized transduction?
6. What conditions allows a B-form DNA to transform into A-DNA? Which of the two is biologically active?
7. Define operons. What is the difference between poly cistronic and monocistronic mRNA?

**II. Answer any FOUR of the following 4x5=20 marks**

1. What is the orientation of the two strands in a double stranded DNA molecule and why is it oriented that way? Where is a nucleotide added to a growing chain and why is it added there?
2. Describe how ethidium bromide and Ethyl methyl sulphonate causes mutations in DNA.
3. How does rolling circle model of DNA replication take place?
4. Explain the mechanism of prokaryotic translation.
5. Describe the mechanism of specialized transduction in bacteria.
6. How does the negative regulation of Lac operon system function?

**III. Answer the following 1X05=05 marks**

1. The Regulatory gene ***I*** of lac-operon system is responsible for the inductive type of regulation. If the researcher decides to convert the Inductive system of Lac-operon to constitutive type, what strategy should he/she be using and why?

**MB-415-B-17**