(Following Paper ID and Roll No. to be filled in your Answer Books) Paper ID : 154654 Roll No.

B.TECH.

Theory Examination (Semester-VI) 2015-16

BIOPHYSICS

Time : 3 Hours

Max. Marks : 100

 $(2 \times 10 = 20)$

Section-A

1. Attempt all parts :

(a) Define unit cell crystal lattice.

- (b) List the basic requirements for performing gel electrophoresis.
- (c) What is Osmosis? State the application of reverse osmosis.
- (d) What is the function of Phosphorus in a DNA molecule.
- (e) Among the electromagnetic radiations, which one is considered and harmful & why?

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- (f) How flowresceme can be used in analysis of organic molecules.
- (g) Write Nernst Equation.
- (h) Disucss the merits & Demerits of Phase contract microscopy.
- (i) Explain the basis theory of FTIR.
- (j) Classify chromatographic techniques with simple diagram.

Section-B

2. Attempt any five :

(a) What is plane polarized light? Discuss how polarized light is used in the instrumental analysis?

 $(5 \times 10 = 50)$

(b) State the Principle of Gas chromatography?

- (c) Describe the instrumentation of Flow cytomater with block diagram.
- (d) Discuss in brief the different techniques suitable for structural Biology Studies with suitable examples?
- (e) Explain the Basic principles working and analytical applications of UV-visible spectroscopy with diagram.
- (f) Explain the principle of Gas chromatography.

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- (g) What are the application of refractometer?
- (h) Describe different detectors used for the UV visible spectrophotometer.

Section-C

Attempt any two

 $(2 \times 15 = 30)$

- 3. (a) Discuss and differentiate between IR spectra and Raman spectra in detail.
 - (b) Working principle & application of thin layor chromatography.
- 4. Explain the principle. Instrumentation & application of Atomic force microscopy with simple diagram.
- 5. Discuss in detail the principle, methodology of SDS-PAGE electrophoresis. Mention its applications & limitations.

P.T.O.