# January, 2017

## BIOPHYSICAL TECHNIQUES

*Time* : Two Hours] [*Maximum Marks* : 40

Answer any five questions. The questions are of equal value.

1. What is the principle of a Centrifuge ? What are the methods followed for organelle separation and subcellular fractionation ?

2. Write notes on the following :

   (*a*) Micrometry

   (*b*) Colony counting

3. Give an account of principle and functioning of spectrometer. Add a note on spectrofluorimetry.

4. Write notes on the following :

   (*a*) X-ray crystallography

   (*b*) Electron Spin Resonance Spectrometry (ESR)

5. What is coloumn chromatography ? How is it different from paper chromatography ? Add a note on biological application of chromatography.





6. Discuss the working principle of agarose gel electrophoresis. A DNA sample has been cut with a restriction enzyme (RE) to produce 5 pieces of DNA of the following length :
   A = 12kbp, B = 30kbp, C = 95kbp, D = 50kbp and E = 70kbp. Draw a diagram to demonstrate where the above bonds will be formed on a gel.

7. Write notes on the following :

   (*a*) Autoradiography

   (*b*) Measurement of radioactivity

8. Differentiate between the following :

   (*a*) Southern blotting and Western blotting

   (*b*) HPLC and HPTLC

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