NCF-003-013204 Seat No. _____

M. Sc. (Sem. II) (CBCS) Examination

April / May - 2017

Biotechnology : BT-210

(Biostatistics & Analytical Techniques)

(Old Course)

Faculty Code : 003

Subject Code : 013204

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

1 Answer the following : (any seven) $2 \times 7 = 14$

(a) What is the difference between paired t-test and unpaired t-test?

(b) What is LSD? When it is calculated?

(c) What is the difference between positive correlation and negative correlation?

(d) Define half life and radio isotope.

(e) What are the biological effects of radiation ?

(f) What are the units of radioactivity measurements?

(g) What is the significance of NMR in biotechnology?

(h) What is Emission Spectroscopy?

(i) What is basic theory of sedimentation?

(j) What is capillary electrophoresis?

2. Answer any **two** of the following : **2×7=14**

(a) Describe various measures of central tendency and measures of dispersion with suitable examples.

(b) What is the difference between t-test and ANOVA? Describe the steps involved in ANOVA.

(c) What is non parametric test? Describe Chi-square test with suitable example.

3 Answer the following : **2×7=14**

(a) What is electron microscopy? Describe SEM technique used for micro structural studies.

(b) Describe the phenomenon of radioactivity decay and its usefulness.

OR

3 Answer the following **2×7=14**

(a) Describe the principle and working of AFM. Add a note on its usefulness in biological studies.

(b) Discuss the principle and application of light microscopy in biological studies.

4 Answer the following : **2×7=14**

(a) What is the use of electromagnetic radiation in spectroscopy ?

(b) Describe various applications of NMR and XRD techniques in biological Science.

5 Write short notes on any two of the following : **2×7=14**

(a) Centrifugation technique

(b) SDS-PAGE

(c) Ion exchange chromatography

(d) HPLC.

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