LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **PLANT BIOLOGY AND PLANT BIOTECHNOLOGY**

FIFTH SEMESTER – **NOVEMBER 2016**

PB 5413 – BIOINSTRUMENTATION & BIOSTATISTICS

Date: 11-11-2016 Dept. No. Max. : 100 Marks

Time: 09:00-12:00

PART – A **(10 x 2 = 20 Marks)**

Answer the following, each within 50 words only:

1. What is centrifugal force?
2. State *Beer – Lambert* 's law.
3. Write any two applications of plasma emission spectroscopy.
4. Mention the principle behind IR spectroscopy.
5. Cite any two uses of ion – exchange chromatography.
6. Expand PAGE and AGE.
7. What is pie diagram?
8. Find the mode of the following data: 23, 77, 85, 56, 77, 92, 45, 77, 66, 90.
9. Define *sample* and *population*.
10. Name two software tools used for statistical applications.

PART – B **(5 x 7 = 35 Marks)**

Answer the following, each within 500 words. Draw diagrams and flow charts wherever necessary.

11. a) Describe the principle and process of lyophilization.

Or

b) Explain the principle and construction of pH meter.

12. a) Give a brief account on the principle and applications of mass spectrometry.

Or

b) Write notes on luminometry.

13. a) Describe the principle of paper chromatography.

Or

b) Explain the working principle of HPLC.

14. a) Calculate the arithmetic mean of the following data:

Plant height (cms)	0-10	10-20	20-30	30-40	40-50	50-60
Number of varieties	5	10	25	30	20	10

Or

b) Describe the different methods for presentation of data.

15. a) Explain briefly the different methods of sampling.

Or

b) Write notes on MS Excel in statistical applications.

PART – C **(3 x 15 = 45 Marks)**

*Answer **any THREE** of the following, each within 1200 words. Draw diagrams and flowcharts wherever necessary.*

16. Give an account on density gradient centrifugation.

17. Describe the working principle and applications of the spectrophotometer.

18. Explain in detail the process and principle of gas chromatography.

19. Calculate the mean, variance, standard deviation and coefficient of variation for the following data:

x	2	4	6	9	11	6	5	3
y	21	24	27	31	35	20	17	11

20. Give a detailed account on steps followed in ANOVA.

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