



# LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIFTH SEMESTER – NOVEMBER 2015

## **PB 5413 - BIOINSTRUMENTATION & BIostatISTICS**

Date : 14/11/2015  
Time : 09:00-12:00

Dept. No.

Max. : 100 Marks

### **PART A**

**ANSWER THE FOLLOWING, EACH WITHIN ABOUT 50 WORDS ONLY: (10 x 2 = 20 marks)**

1. Define pH.
2. What is sedimentation coefficient?
3. Write the applications of densitometry.
4. What is the absorption spectrum?
5. List out any 2 uses of chromatography.
6. Expand PAGE and AGE.
7. Define the term 'sample'.
8. Find the range for the following data: 34, 72, 66, 55, 10, 34, 22, 30.
9. What is null hypothesis?
10. Define poisson distribution.

### **PART B**

**ANSWER THE FOLLOWING, EACH WITHIN 500 WORDS. DRAW DIAGRAMS AND FLOWCHARTS WHEREVER NECESSARY (5 x 7 = 35 marks)**

11. (a) Give a brief account on lyophilization.

Or

- (b) Explain the working principle of the pH meter.

12. (a) Write briefly on working principle of double beam spectrophotometer.

Or

- (b) Write briefly on the principle and applications of infrared spectroscopy.

13. (a) Write notes on paper chromatography.

Or

- (b) Describe the process of gel filtration chromatography.

14. (a) Discuss the different methods for presentation of data.

Or

- (b) Find the standard deviation of the following data:

<b>Variable (x)</b>	11	12	17	15	13	14	19	20
<b>Frequency (f)</b>	51	55	60	62	64	55	70	80

15. (a) Give a brief note on ANOVA.

Or

- (b) Write notes on population and sampling methods.

**PART C**

**ANSWER ANY THREE OF THE FOLLOWING, EACH WITHIN 1200 WORDS. DRAW DIAGRAMS WHEREVER NECESSARY** (3 x 15 = 45 marks)

- 16. Write in detail on density gradient centrifugation.
- 17. Discuss in detail on principle and working of mass spectrometer.
- 18. Give an account on the principle, working and applications of GLC.
- 19. The rainfall and the output of wheat per acre for a farm is as follows:

Rainfall (cms)	40	20	32	35	40	45	43	30	25	50
Wheat production (quintals)	120	120	145	150	100	120	120	135	130	140

Find the correlation coefficient between the rainfall and wheat production.

- 20. Write short notes on i) MS Excel  
ii) SPSS

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