LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIFTH SEMESTER – NOVEMBER 2017

PB 5413 - BIOINSTRUMENTATION & BIOSTATISTICS

Date: 15-11-2017
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

PART A

Answer the following, each within 50 words   *(10 x 2 = 20 marks)*

1. Write notes on principles of centrifugation.

2. List the conditions for lyophilization.

3. What is IR spectroscopy?

4. Cite the role of a monochromator.

5. Give any two applications of chromatography.

6. Expand: AGE and PAGE.

7. Define primary data and secondary data.

8. Find out the mode from the following data: 11, 22,33, 11, 62, 45, 11, 33, 55, 11

9. What is ANOVA?

10. Define sample.

PART B

Answer the following, each within 500 words. Draw diagrams and flowcharts wherever necessary.
                    (5 x 7 = 35 Marks)

11. a) Describe the process of differential centrifugation.
                    OR
    b) Write short notes on sonication.

12. a) Give a brief account on plasma emission spectroscopy.
                    OR
    b) Write briefly on the principle and uses of luminometry.

13. a) Describe the process of paper chromatography.
                    OR
    b) Write notes on ion – exchange chromatography.

14. a) Give a brief account on the methods for presentation of data.
                    OR
    b) Calculate the correlation coefficient for the following data:

Height (in)	65	68	62	70	65	72	67	66	68	70
Weight (lbs)	128	140	120	152	138	160	135	130	125	16

15. a) Write short notes on the random sampling methods.

Or

   b) Give a brief account on the application of MS Excel in statistics.

PART C

*Answer **any three** of the following, each within 1200 words. Draw diagrams and flowcharts wherever necessary.* *(3 x 15 = 45 Marks)*

16. Describe the working principle and applications of the Ph meter.

17. Give an account on principle and applications of mass spectroscopy.

18. List the different types of chromatography and explain in detail on HPLC and its applications.

19. Data were recorded on black colour of cows in 10 herds. The number of black cows and their frequencies in each herd is given below. Calculate the mean, the variance, the standard deviation and the coefficient of variation from this distribution.

Black cows/herd (x)	2	4	6	8	5	3	1
No. of cows/herd (f)	8	10	12	15	11	9	4

20. Write in detail on the different probability distributions.

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