LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.A. DEGREE EXAMINATION – **ECONOMICS**

THIRD SEMESTER – **NOVEMBER 2016**

EC 3503 – QUANTITATIVE METHODS IN ECONOMICS

Date: 04-11-2016 Dept. No. Max. : 100 Marks

Time: 09:00-12:00

PART-A

Answer any FIVE Questions each in about 75 words: (5 x 4 = 20 Marks)

1. Describe the importance of the concept probability.
2. Give an account of the role of Poisson distribution.
3. Briefly explain the concept 'binomial distribution'.
4. Define hypothesis and null hypothesis.
5. Write a short note on:- (a) t-test, (b) F-distribution
6. Explain how level of significance is interpreted.
7. What is Analysis of Variance? What are its assumptions?

PART-B

Answer any FOUR Questions each in about 250words: (4 x 10 = 40 Marks)

8. Explain the theorems of probability.

9. Explain normal distribution; List out its properties.

10. Describe the methods of fitting a normal curve.

11. Illustrate the one tailed and two tailed test of hypothesis.

12. The life time of electric bulbs for a random of sample of 10 from a large consignment give the following data:

Item	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Life in '000' hours	4.2	4.6	3.9	4.1	5.2	3.8	3.9	4.3	4.4	5.6

Can you accept the hypothesis that the average life time of bulbs is 4000 hours?

13. Give a brief note on the techniques of Analysis of Variance.

14. Explain about Randomized Block Design and Latin Square Design.

PART-C

Answer any TWO Questions each in about 900 words: (2 x 20 = 40 Marks)

15. (I) Explain the various types of events in probability.

(II) A bag contains 5 white and 8 red balls. Two drawings of 3 balls are made such that (i) the balls are replaced before the second trail, and (b) the balls are not replaced before the second trail. Find the probability that the first drawing will be give 3 white and the second 3 red balls in each case.

16. The average daily sale of 500 branch offices was Rs.150 thousand and the standard deviation was Rs.15 thousand. Assuming the distribution to be normal, indicate how many branches have sales between:
(i) Rs.125 thousand and Rs.145 thousand (ii) Rs.140 thousand and Rs.165 thousand.

17. Explain:- (i) Procedure followed in testing a hypothesis; (ii) Type I and Type II error (iii) Confidence interval test

18. (i) Describe the uses of Chi square test.

(ii) A controlled experiment was conducted to test the effectiveness of a new drug. Under this experiment 300 patients were treated with new drug and 200 were not treated with the drug. The results of the experiment was given below:

Details	**Cured**	**Conditions Worsened**	**No effect**	**Total**
Tested with the Drug	200	40	60	**300**
Not tested with the Drug	120	30	50	**200**
Total	**320**	**70**	**110**	**500**

Use $\mathbf{X^2}$ and comment on the achievement of the drug.

$$$$$$$