

# LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



## B.A.DEGREE EXAMINATION –ECONOMICS

THIRD SEMESTER – APRIL 2018

### EC 3503– QUANTITATIVE METHODS IN ECONOMICS

Date: 05-05-2018  
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

#### PART-A (5 x 4 = 20 Marks)

Answer any FIVE Questions each in about 75 words

1. Explain conditional probability.
2. State the importance of Poisson distribution.
3. Distinguish between null hypothesis and alternative hypothesis.
4. Explain how the level of significance is interpreted?
5. Explain ANOVA.
6. Explain Latin square design.
7. Explain confidence intervals.

#### PART-B (4 x 10 = 40 Marks)

Answer any FOUR Questions each in about 250 words

8. Explain the addition and multiplication theorem of probability.
9. Define binominal distribution; list out its characteristic features.
10. Illustrate one-tailed and two-tailed tests of significance.
11. A controlled experiment was conducted to test the effectiveness of a new drug. Under this experiment 300 patients were treated with the new drug and 200 were not treated with the drug. The results of the experiment are given below:

Details	Cured	Condition worsened	No effect	Total
Treated with the drug	200	40	60	300
Not treated with the drug	120	30	50	200
Total	320	70	110	500

Use  $X^2$  and comment on the effectiveness of the drug.

12. Explain the difference between One-way ANOVA and Two-way ANOVA

13. The following data present the yields in quintals of common ten subdivisions of equal area of two agricultural plots

Plot one : 625765 606358 57606058

Plot two : 56 595657585760555755

Test whether two samples taken from two random populations have the same variance. (5% point of F for  $v_1 = 9$  and  $v_2 = 9$  is 3.18)

14. Explain the different events that are used while calculating probability.

**PART-C (2 x 20 = 40 Marks)**

**Answer any TWO Questions each in about 900 words**

15. Discuss the different approaches of probability.

16. Discuss the normal distribution in detail.

17(a) Describe the procedure followed in testing of hypothesis.

(b) 10 persons were appointed in a electrical position in an office. Their performance was noted by giving a test and the marks recorded out of 50. They were given 6 months training and again given a test marks were recorded out of 50.

Employees : A B C D E F G H I J

Before training : 25 20 35 15 42 28 26 44 35 48

After training : 26 20 34 13 43 40 29 41 36 46

By applying the t-test can it be concluded that these employees have benefited by the training?

(You are given for  $v = 9$ ,  $t_{0.05} = 2.262$ )

18. (a) Explain the significance and steps in construction of Randomized Block Design.

(b) Perform a two-way ANOVA on the data given below

Plots of Land	Treatment			
	A	B	C	D
I	38	40	41	39
II	45	42	49	36
III	40	38	42	42

(Use coding method subtracting 40 from the given number)

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