LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

THIRD SEMESTER – **APRIL 2016**

EC 3503 – QUANTITATIVE METHODS IN ECONOMICS

Date: 28-04-2016 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. Define conditional probability.
2. A bag contains 6 white, 4 red and 10 black balls. Two balls are draw at random. Find the probability that both the balls are black.
3. State the importance of Poisson distribution.
4. Distinguish between Null hypothesis and Alternative hypothesis.
5. A wholesaler in apples claims that only 4% of the apples supplied by him are defective. Random samples of 600 apples contained 36 defective apples. Test the claim of the wholesaler.
6. Write a note on Chi-square test. Point out its uses.
7. Define ANOVA**.** Bring out its assumptions.

PART-B

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

8. Illustrate the Baye's theorem of probability.
9. State the pdf of Binomial Distribution. What are its characteristic features?
10. Enumerate the procedure followed in testing a hypothesis.
11. Diagrammatically represent the One-tailed and Two-tailed tests of hypothesis.
12. A typist kept a record of mistakes made per day during 300 working days of a year. Fit a Poisson distribution to the data:

Mistakes per day (X)	0	1	2	3	4	5	6
Number of days	143	90	42	12	9	3	1

(Given $e^{-0.89} = 0.40656$)

13. From a sample of 19 pairs of observations the correlations is 0.5 and the corresponding population value is 0.3. Is the difference significant? Use Z-test.
14. Explain the concepts- (i) randomized block design: (ii) Latin square design.

PART-C

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

15. Discuss the different approaches of Probability.

16. (a) Enumerate the properties of Normal Distribution. (10)

(b) An aptitude test conducted for selecting officers in a bank was conducted on 1000 candidates, the average score is 42 and the standard deviation of score is 24. Assuming Normal Distribution for the scores, find:

(i) The number of candidates whose scores exceed 60.
(ii) The number of candidates whose scores lie between 30 and 66. (10)

17. From the adult male population of seven large cities random samples of married and unmarried men as given below were taken. Can it be said that there is a significant variation among the people of different cities have the tendency to marry?

City	A	B	C	D	E	F	G	Total
Married	170	285	165	106	153	125	146	1150
Unmarried	40	125	35	37	55	35	33	360
	210	410	200	143	208	160	179	1510

(Give for v = 6, $\chi^2_{\alpha=0.05} = 12.6$)

18. 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 numbers).

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