

M A DEGREE END SEMESTER EXAMINATION APRIL - 2016
SEMESTER- 2: ECONOMICS

COURSE: P2ECOT10 – QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS – II
 (Common for Regular- 2015 Admission /Supplementary- 2014 Admission)
 Time: Three Hours Maximum. Marks: 75

Use of Calculator is permitted

PART A

Each question carries 2 marks

1. Examine whether the following is a probability distribution

x	-1	0	1	2	3
P(x)	0.2	0.3	0.1	0.2	0.2

2. State any three properties of mathematical expectation.

3. Define Binomial distribution. Comment on the statement “The mean of a binomial distribution is 4 and variance is equal to 5”.

4. Distinguish between estimation and testing.

5. Define F distribution.

PART B

Each questions carries 5 marks. Maximum marks from this part is 35

6. If a random variable x possesses the following function.

X	3	2	1	0	-1	-2	-3
P(x)	0.	0.	3K	K	2K	0	0.
	1	2					1

Then find a) value of K b) Mean of x c) Variance of X.

7. X is a random variable whose mean is μ and standard deviation σ . Obtain the mean and SD of a) $4X$ b) $4X + 3$ c) If X and Y are two independent variates and $V(X) = 2$, $V(Y) = 3$ find $V(3X + 2Y)$.

8. A machine produces 10% defective items. Ten items are selected at random. Find the probability of not more than two items being defective.

9. Define lognormal distribution. Explain the applications of lognormal in economics.
10. Explain the desirable properties of a good estimate.
11. A random sample of size 16 has mean 53 and standard deviation 3. Obtain 95% confidence limits of the population mean.
12. Distinguish between a) simple and composite hypothesis b) Type I and Type II errors in testing of hypothesis.
13. Define standard error. Mention its uses in large sample theory.
14. Explain paired t-test.
15. How do you use chi-square for testing the goodness of fit.

PART C

Each question carries 15 marks. Maximum marks from this part is 30

16. State the properties (at least 7) of normal distribution.
In an examination marks obtained by the students follow a normal distribution with mean 58 and standard deviation 10. Find the probability that student may get a) less than 63 marks b) between 41 and 63 marks c) between 50 and 60 marks d) greater than 60 marks.
17. Ten students were given a memory test by being asked to see a picture for one minute and write down the articles seen by them in the picture. They were given two weeks training and at the end they were given the same test. The results are given below. Has the training any significant effect in improving their memories.

Student	A	B	C	D	E	F	G	H	I	J
Test I	10	8	7	9	8	10	9	6	7	8
Test II	12	8	8	10	8	11	9	8	9	9

18. How will you test the independence of two attributes?
Following table provides data with regard to stature of the fathers and their first sons at the age of 25 years.

		Stature of Fathers		
		Tall	Short	Total
Stature of Sons	Tall	8	2	10
	Short	7	6	13
	Total	15	8	23

Test that stature of sons is independent of the stature of the fathers.
