

Reg. No.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

3/6 AN

Question Paper Code : 80331

M.B.A. DEGREE EXAMINATION, MAY/JUNE 2016

First Semester

BA 7102 – STATISTICS FOR MANAGEMENT

(Regulations 2013)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A (10 × 2 = 20 Marks)

1. Define random variable.
2. State the conditions for application of binomial distribution.
3. State the central limit theorem.
4. State the qualities of a good estimator.
5. What is null hypothesis ?
6. What is Type I error and Type II error ?
7. Write any two conditions for applying chi-square test.
8. Briefly Explain one sample sign test.
9. Write the components of a time series.
10. Define correlation.

PART – B (5 × 16 = 80 Marks)

11. (a) A factory has two machines A and B. Past records show that machine A produces 30% of the total output and machine B the remaining 70%. Machine A produces 5% defective article and machine B produces 1% defective items. An item is drawn at random and found to be defective. What is the probability that it was produced (a) by machine A (b) by machine B ?

OR

- (b) If the probability that a man aged 60 will live to be 70 is 0.65. What is the probability that one of 10 men now 60, at least 7 will up to 70 ?

12. (a) (i) Explain point estimate and interval estimate. (8)
- (ii) A random sample of size 65 was taken to estimate the mean annual income of 100 families and the mean and standard deviation were found to be ₹ 6,300 and ₹ 9.5 respectively. Find 95% confidence interval for the population. (8)

OR

- (b) (i) Out of 300 households in a town 123 have TV sets. Find 95% confidence limits to the true value of the proportion of the households with TV sets in the whole town. (8)
- (ii) A factory is producing 50,000 pairs of shoes daily. From a sample of 500 pairs 2% were found to be of substandard quality. Estimate the number of pairs that can be reasonably expected to be spoiled in the daily production and assign limits at 95% levels of significance expected to be spoiled in the daily production and assign limits at 95% level of confidence. (8)

13. (a) The following table gives the yield on 15 sample fields under three varieties of seeds viz, A, B, C,

A	B	C
20	18	25
21	20	28
23	17	22
16	25	28
20	15	32

Test at 5% level of significance whether the average yields of land under different varieties of seed show significance difference.

OR

- (b) A group of five patients treated with medicine A weight 42, 39, 48, 60 and 41 kg. A second group of 7 patients from the same hospital treated with medicine B weight 38, 42, 56, 64, 68, 69 and 62 kg. Do you agree with the claim that the medicine B increases the weight significantly ?

14. (a) During one semester a student received in various subjects the marks shown below. Test at 0.05 significance level whether there is a difference between the marks in these subjects.

Maths	72	80	83	75	
Science	81	74	77		
English	88	82	90	87	80
Economics	90	71	77	70	

OR

- (b) From the data given below, calculate the coefficient of rank correlation between X and Y :

X :	78	89	97	69	59	79	68	57
Y :	125	137	156	112	107	136	123	108

15. (a) Calculate the coefficient of correlation X and Y for the following data :

X: 1 2 3 4 5 6 7 8 9

Y: 9 8 10 12 11 13 14 16 15

OR

(b) Fit a straight line trend by the method of least squares to the following data. Also forecast for the year 2015.

Year : 2005 2006 2007 2008 2009 2010 2011 2012

Earning in lakhs : 38 40 65 72 69 60 87 95