(6 pages)

S.No. 625

08PCM03/
08PCZ03

(For the candidates admitted from 2008-2009 onwards)

M.Com. DEGREE EXAMINATION, NOVEMBER 2017.

First Semester

Elective I — ADVANCED BUSINESS STATISTICS

Time : Three hours   Maximum : 75 marks

SECTION A — (5 × 5 = 25 marks)

Answer ALL questions.

1. (a) Calculate standard deviation from the following data :

Age	20-25	25-30	30-35
No. of persons	170	110	80

Age	35-40	40-45	45-50
No. of persons	45	40	35

Or

(b) Explain different types of averages.

2. (a) Write the formula for the following Normal distribution.

(i)   Mean

(ii) Standard deviation

(iii) Skewness

(iv) Kurtosis and

(v)   Variance.

Or

(b) A sample of 3 items is selected at random from a box containing 12 items of which 3 are defective. Find the possible number of defective combinations of the said 3 selected items along with probability of a defective combination.

3. (a) The manufacturer of a certain make of electric bulbs claims that his bulbs have a mean life of 25 months with a standard deviation of 5 months. A random sample of 6 such bulbs gave the following values. Life of months 24, 26, 30, 20, 20, 18. Can you regard the producer's claim to be valid at 1% level of significance?

Or

(b) State the merits of standard error.

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4. (a) Discuss about Yate's correlations.

Or

(b) What are the characteristics of χ^2-test?

5. (a) State some applications of analysis of variance.

Or

(b) Discuss the advantages and limitations of multiple correlation.

SECTION B — (5 × 10 = 50 marks)

Answer ALL questions.

6. (a) Calculate Median and Mode of the data given below. Using them find arithmetic mean.

Marks	0-10	10-20	20-30	30-40	40-50	50-60
No. of students	8	15	22	20	10	5

Or

(b) The following data relate to the scores obtained by 9 salesmen of a company in an intelligence test and their weekly sales in thousand rupees:

Salesmen intelligence	A	B	C	D	E	F	G	H	I
Test scores	50	60	50	60	80	50	80	40	70
Weekly sales	30	60	40	50	60	30	70	50	60

(i) Obtain the regression equation of sales on intelligence test scores of the salesmen.

(ii) If the intelligence test score of the salesmen in 65 what would be his expected weekly sales?

7. (a) The following mistakes per page were observed in a book:

No. of mistakes per page:	0	1	2	3	4
No. of times the mistake occurred:	211	90	19	5	0

Fit a Poisson distribution to the data and test for goodness of fit.

Or

(b) The mean weight of 500 male students in a certain college is 151 lb and the standard deviation is 15 lb. Assuming the weights are normally distributed find how many students weight (i) between 120 and 155 lb and (ii) more than 185 lb.

8. (a) Write a note on test of significance for attributes.

Or

(b) Intelligence test on two groups of boys and girls gave the following results:

	Mean	S.D.	N
Girls	75	15	150
Boys	70	20	250

Is there a significant difference in the mean scores obtained by boys and girls?

9. (a) Write a note on SPSS package.

Or

(b) A tea company appoints four salesmen A, B, C and D and observes their sales in three seasons – summer, winter and monsoon. The figures (in lakhs) are given in the following table :

Seasons	Salesmen				Season's
	A	B	C	D	Total
Summer	36	36	21	35	128
Winter	28	29	31	32	120
Monsoon	26	28	29	29	112
Salesmen's Total	90	93	81	96	360

(i) Do the salesmen significantly differ in performance?

(ii) Is there significant difference between the seasons?

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10. (a) What are the uses of regression analysis?

Or

(b) The joint probability distribution of X and Y is given below:

Y \ X	−1	+1
0	1/8	3/8
1	2/8	2/8

Find the correlation coefficient between X and Y.

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