SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai - 600 044.
B.Com. ISM - END SEMESTER EXAMINATIONS APRIL - 2024
SEMESTER - III
20UBIAT3003 - Business Mathematics and Statistics - I

Total Duration : 2 Hrs. 30 Mins. Total Marks : 60

Section B

Answer any **SIX** questions $(6 \times 5 = 30$ Marks)

1. Given U = {1, 2, 3, 4, 5, 6, 7}, A = {1, 2, 3, 4, 5}, B = {1, 3, 5, 7}, C ={2, 5, 6, 7}. Find i) A∪C ii) C – B iii) C'∩A.
2. Explain the five stages in Statistical Investigation.
3. For a group of 50 male workers, the mean and standard deviation of their daily wages are Rs.63 and Rs.9 respectively. For a group of 40 female workers, these are Rs.54 and Rs.6 respectively. Compute the standard deviation of daily wages for the combined group of 90 workers.
4. Given the following pairs of values:

Capital	1	2	3	4	5	7	8	9	11	12
Profits	3	5	4	7	9	8	10	11	12	14

   i) Prepare a scatter diagram.
   ii) Do you think that there is any correlation between profits and capital employed? Is it positive? Is it high or low?

5. Find the banker's gain on a bill of Rs.3,750 due in 8 months at 8% per annum.
6. Explain in detail about the primary data.
7. The mean and the standard deviation of a sample of size 10 were found to be 9.5 and 2.5 respectively. Later on, an additional observation became available. This was 15.0 and was included in the original sample. Compute the mean and the standard deviation of the 11 observations.
8. An examination of eight applicants for a clerical post was taken by a firm. From the marks obtained by the applicants in the Accountancy and Statistics papers. Determine rank coefficient of correlation.

Applicant	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
Marks in Accountancy	15	20	28	12	40	60	20	80
Marks in Statistics	40	30	50	30	20	10	30	60

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Section C

Answer any **THREE** questions $(3 \times 10 = 30$ Marks)

9. Define function. Explain about the different types of functions.

10. X invests Rs.100 at the end of 1981, Rs.200 at the end of 1982, Rs.300 at the end of 1983, Rs.400 at the end of 1984 and Rs.500 at the end of 1985. If interest is compounded at 10% per annum then compute his amount of his investment at the end of 1986.

11. Evaluate the mean, median and mode for the following data pertaining to marks in statistics out of 140 marks for 80 students in a class:

Marks	0-20	20-40	40-60	60-80	80-100	100-120	120-140
No. of students	4	26	22	10	9	6	3

12. You are given the data pertaining to kilowatt hours of electricity consumed by 100 persons in Delhi.

Consumption	**No. of users**
0 – 10	6
10 – 20	25
20 – 30	36
30 – 40	20
40 – 50	13

Determine i) the standard deviation and ii) the range within which middle 50% of the consumers fall.

13. The following data give the ages and blood pressure of 10 women:

Age (X)	56	42	36	47	49	42	60	72	63	55
Blood Pressure (Y)	147	125	118	128	145	140	155	160	149	150

i) Find the correlation coefficient between X and Y.
ii) Determine the regression equation of Y on X.
iii) Estimate the blood pressure of a woman whose age is 45 years.

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