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 - NOV'2024
SEMESTER - III
23UBIAT3003 - Business Mathematics and Statistics

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

Section B

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

1. Explain the concept of set operations with examples.

2. Calculate geometric mean of the following:

50	72	54	82	93

3. A sample of size 15 has mean 3.5 and S.D 3.0 .Another sample size 22 has mean 4.7 and S.D 4.0. If the two samples are plotted together, find the mean and S.D. of the combined.

4. Given the following data , calculate the expected value of Y when X= 12.

	X	Y
Average	7.6	14.8
Standard Deviation	3.6	2.5
r= 0.99		

5. Mohit pays Rs.9,000 as an amount on the sum of Rs.7,000 that he had borrowed for 2 years. Find the rate of interest.

6. Calculate mean deviation and mean coefficient of dispersion from the following data:

Marks	10	15	20	30	40	50
Frequency	8	12	15	10	3	2

7. Calculate mean, median and mode from the following data.

Scores	0-10	10-20	20-30	30-40	40-50
Frequency	3	5	9	3	2

8. A random sample of 5 college students is selected and their grade in Mathematics and Statistics are found to be:

	1	2	3	4	5
Mathematics	85	60	73	40	90
Statistics	93	75	65	50	80

   Calculate Pearman's rank correlation coefficient.

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Section C

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

9. If Set A $= \{1, 2\}$, Set B $= \{2, 3\}$ and Set C $\{3, 4\}$ then find
   (i)   A $\times$ (B $\cup$ C)
   (ii) (A $\times$ B) $\cap$ (A $\times$ C).
   (iii) A $\times$ (B $\cap$ C).

10. Illustrate the difference between Nominal Rate and Effective Rate of Interest in compound interest calculations.

11. Find out the mode from the following data showing frequency with which profits are made:

Profits in thousands:	3-4	4-5	5-6	6-7	7-8	8-9	9-10
Frequency	83	27	25	50	75	38	18

12. Find the Standard deviation and coefficient of skewness for the given distribution.

Variables	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40
Frequency	2	5	7	13	21	16	8	3

13. Find the suitable coefficient of correlation for the following data.

Fertiliser	15	18	20	24	30	35	40	50
Productivity	85	93	95	105	120	130	150	160

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