B.Com. (ISM) DEGREE EXAMINATION,NOVEMBER 2018
II Year III Semester
Core Allied- Paper III
BUSINESS MATHEMATICS AND STATISTICS - I

Time : 3 Hours **Max.marks :75**

Section A $(10 \times 2 = 20)$ Marks

Answer any **TEN** questions

1. Define a Set.
2. Find the term of a bill whose face value is Rs. 3,150 and the true discount on it at 5% is Rs. 150.
3. Write a short note on mean.
4. What is Range?
5. What is meant by correlation?
6. Find the arithmetic mean for the following set of observations:

   25,32,28,34,24,31,36,27,29,30
7. Find the median for the following observations:

   27,36,28,18,35,26,20,35,40,26
8. Find the mode for the following data:

   3,5,7,5,9,7,5,7,6,3,9,5,6,6,3.
9. Find the range for the following information:

   35,40,52,29,51,46,27,30,30,23
10. Find standard deviation for the following set of numbers:

    3,8,6,10,12,9,11,10,12,7
11. Pearson's coefficient of skewness is -0.7 and the value of median and standard deviation are 12.8 and 6 respectively. Determine the value of the mean.
12. Write the formula to calculate rank correlation.

Section B $(5 \times 5 = 25)$ Marks

Answer any **FIVE** questions

13. Explain about the types of correlation.
14. The arithmetic mean calculated from the following frequency distribution is known to be 67.5 inches. Find the missing frequency.

Height	60-62	63-65	66-68	69-71	72-74
Frequency	15	54	?	81	24

15. Find median of the following frequency distribution:

Wages	5	10	15	20	25	30
Persons	7	12	37	25	22	11

16. Find the mean deviation about mean for the following data:

Class	0-5	5-10	10-15	15-20	20-25
Frequency	3	5	12	6	4

17. Calculate quartile deviation:

Height	50-53	53-56	56-59	59-62	62-65	65-68
Students	2	7	24	7	13	10

18. Find the Compound Interest on Rs. 5000 for 3 years if the rate of interest be 5%, 6%, 7% for the 1^{st}, 2^{nd} and 3^{rd} year respectively.

19. Find the line of regression of Y on X

X	1	2	3	4	5	8	10
Y	9	8	10	12	14	16	15

Section C $(2 \times 15 = 30)$ Marks

Answer any **TWO** questions

20 . Find mean, median and mode for the following data and verify empirical relation:

Class	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Frequency	3	7	13	17	12	10	8	8	6	6

21. Given that A=$\{0,1,3,5\}$ B=$\{1,2,4,7\}$ c=$\{1,2,3,5,8\}$ Prove that

(i) $(A \cap B) \cap C = A \cap (B \cap C)$

(ii) $(A \cup B) \cup C = A \cup (B \cup C)$

(iii) $(A \cup B) \cap C = (A \cap C) \cup (B \cap C)$

(iv) $(A \cap B) \cup C = (A \cup C) \cap (C \cup B)$

22. Calculate Pearson's coefficient of Skewness for the following data.

Class	3-7	8-12	13-17	18-22	23-27	28-32	33-37	38-42
Frequency	2	108	580	175	80	32	18	5

23. Calculate Karl Pearson's coefficient of correlation from the following data, using 20 as the working mean for price and 70 as the working mean for demand:

Price	14	16	17	18	19	20	21	22	23
Demand	84	78	70	75	66	67	62	58	60

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