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. - END SEMESTER EXAMINATIONS - NOV'2024
SEMESTER - I
23UCOAT1001 - Business Statistics and Operations Research

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

Section B

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

1. What are the types of classifications of data and explain.
2. Compute quartile deviation and its coefficient.

Marks	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	8	20	25	30	12	5

3. A certain survey shows that out of 50 ordinary shops, 35 are managed by men of which 17 are in cities. 12 shops in village are run by women. Can it be inferred that shops run by women are relatively more in village than in cities?
4. The following table provides the jobs of a network along with their time estimates.

Jobs	1-2	1-3	2-4	3-4	4-5	3-5
Optimistic time	2	9	5	2	6	8
Most likely time	5	12	14	5	6	17
Pessimistic time	14	15	17	8	12	20

Draw the network and find the critical path. Also find the expected variance of the project length.

5. Find an initial basic feasible solution using North-west corner rule.

		X	**Y**	**Z**	**Availability**
	A	8	7	3	60
	B	3	8	9	70
	C	11	3	5	80
Demand	50	80	80	210	

6. A random sample of 20 tyres from a large consignment gave the average life of the tyres as 36,000km and standard deviation of 4,500km. Could the sample come from the population with a mean life of 40,000? (t-value at 5% level for 19 d.f is 1.73)
7. Calculate the mean deviation about mean for the following data:

No. of calls	2	3	4	5	6	7
Frequency	1	5	8	4	2	1

Contd...

8. State the Hungarian algorithm to solve an assignment problem.

Section C

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

9. The median of a distribution given below is 28.5, find the values of x and y.

Class interval	0-10	10-20	20-30	30-40	40-50	50-60	Total
Frequency	5	x	20	15	y	5	60

10. Calculate the coefficient of correlation from the following data of marks in commerce and economics.

Marks in commerce	50	60	58	47	49	33	65	43	46	68
Marks in economics	18	17	19	21	20	23	22	25	27	26

11. In a partially destroyed laboratory record of an analysis of correlation data, the following results were obtained. Variance of X is 9 and the regression equations are 8X-10Y+66=0 and 40X-18Y=214.
    Find (i) the mean values of X and Y.
    (ii) the coefficient correlation between X and Y.
    (iii) the variance of Y.

12. The head of the department has 5 jobs A, B, C, D and E and 5 subordinates V, W, X, Y and Z. The number of hours each man would take perform each job is as follows:

V	W	X	Y	Z
3	5	10	15	8
4	7	15	18	8
8	12	20	20	12
5	5	8	10	6
10	10	15	25	10

13. Solve the following transportation problem for minimized cost.

	Market				
Warehouse	**P**	**Q**	**R**	**S**	**Supply**
A	6	3	5	4	22
B	5	9	2	7	15
C	5	7	8	6	8
Requirement	7	12	17	9	45

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