

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.

M.Com. - END SEMESTER EXAMINATIONS APRIL - 2023

SEMESTER - II

20PCOCT2006 - Quantitative Techniques for Business Decisions

Total Duration : 2 Hrs. 30 Mins.

Total Marks : 60

Section B

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

- Briefly explain the two important theorems of Probability.
- One card is drawn from a standard pack of 52. What is the probability that it is either a King or a Queen?
- What is Hypothesis? What are the two types of Hypothesis that are used in statistical test?
- What is Chi-square (χ^2) test? What are the steps that are required to determine the value of Chi-square (χ^2)?
- From the following data test if the difference between the variances is significant at 5% level of significance. [Table value of F (7,9) at 5% level = 3.9]

Sum of squares of deviations from the mean	84.4	102.6
Size	8	10
Sample	A	B

- State the differences between Correlation and Regression Analysis.
- Find the optimal solution for the following assignment problem with following cost matrix. Determine the assignment of applicants to jobs.

		Jobs		
		J ₁	J ₂	J ₃
Applicants	A	26	23	27
	B	23	22	24
	C	24	20	23

- A T.V. repairman finds that the time spent on his jobs has an experimental distribution with mean 30 minutes. If the repairs sets in the order in which they come in and if the arrival of set is approximately Poisson with an average rate of 10 per 8 hour day.
 - how many jobs are ahead of the set just bought in ?
 - what is the repairman's expected idle time each day?

Contd...

Section C

I - Answer any **TWO** questions ($2 \times 10 = 20$ Marks)

9. A fair coin is tossed six times. What is the probability of obtaining four or more heads?
10. In an anti malarial campaign in a certain area, quinine was administered to 1,624 persons out of a total population of 6,496. The number of fever cases is shown below:

Treatment	Fever	No fever	Total
Quinine	40	1,584	1,624
No quinine	440	4,432	4,872
Total	480	6,016	6,496

Discuss the usefulness of quinine in checking malaria.

(Degrees of freedom = 1, Chi-square 5% = 3.84)

11. The three samples below have been obtained from normal populations with equal variances. Test the hypothesis that the sample means are equal.

X_1	X_2	X_3
8	7	12
10	5	9
7	10	13
14	9	12
11	9	14

The table value of F at 5% level of significance $V_1 = 2$ and $V_2 = 12$ is 3.88.

12. A small industry finds for the past data, that the cost of making an item in Rs.25, the selling price of an item is Rs.30, if it is sold within a week and it could be disposed at Rs.20 per item at the end of the week.

Weekly sales	≤ 3	4	5	6	7	≥ 8
No. of weeks	0	10	20	40	30	0

Find the optimum number of items per week should the industry produce.

II - Compulsory question ($1 \times 10 = 10$ Marks)

13. Solve the following transportation problem using North West Cornor method :

		Destinations			
		D_1	D_2	D_3	Supply
Sources	S_1	2	7	4	5
	S_2	3	3	1	8
	S_3	5	4	7	7
	S_4	1	6	2	14
Demand		7	9	18	34

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