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 APRIL-2023
SEMESTER - II
20UCOAT2002 - Business Statistics and Operations Research-II

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

Section B

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

1. A ball is drawn at random from a box containing 6 red balls, 4 white balls and 5 blue balls. Determine the probability that it is:
   i) Red ii) White iii) Blue iv) Not red and v) Red or White.

2. Two cards are drawn from a pack of cards at random. What is the probability that it will be
   a) Diamond and a heart
   b) A king and a queen
   c) Two kings

3. Give a brief note on the judgment sampling and its merits.

4. What do you mean by probability and nonprobability sampling method?

5. Distinguish between PERT and CPM.

6. One thousand Articles from a factory are examined and found to be 3% defective. Fifteen hundred similar articles from a second factory are found to be only 2% defective. Can it reasonably be concluded that the product of the first factory is inferior to the second?

7. The life time of electric bulbs for a random sample of 10 from a large consignment gave the following data:

Items	Life in (000) hours
1	4.2
2	4.6
3	3.9
4	4.1
5	5.2
6	3.8
7	3.9
8	4.3
9	4.4
10	5.6

Can we accept the hypothesis that the average life time of bulbs is 4,000 hours? Use t - Test.

Contd...

8. Find the optimal solution for the assignment problem with the following cost matrix.

Salesman		Area			
		W	**X**	**Y**	**Z**
	A	11	17	8	16
	B	9	7	12	6
	C	13	16	15	12
	D	14	10	12	11

Section C

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

9. Two dice are thrown. Find the probability that:
    a) The total of the numbers on the dice is 8,
    b) The first dice shows 6,
    c) The total of the numbers on the dice is greater than 8,
    d) The total numbers on the dice is 13,
    e) Both the dice show the same number,
    f) The sum of the numbers shown by the dice is less than 5,
    g) The sum of the numbers shown by the dice is exactly 6.

10. Explain the types of probability sampling methods.

11. A certain drug was administered to 500 people out of a total of 800 included in the sample to test its efficacy against typhoid. The results was given below:

	Typhoid	No. Typhoid	Total
Drug	200	300	500
No Drug	280	20	300
Total	480	320	800

On the basis of these data, can it be concluded that the drug is effective in preventing typhoid?

12. A project work consist of four major jobs for which four major contractors have submitted tenders. The tender documents quoted in thousand of Rupees are given with the matrix as

Contractors		Jobs			
		J1	**J2**	**J3**	**J4**
	C1	15	27	35	20
	C2	21	29	33	17
	C3	17	25	37	15
	C4	14	31	39	21

Find the assignment which minimises the total of the project cost. Each contractor has to be assigned one job.

Contd...

13. Find the project duration using CPM given the following activities and duration.

Activity	1-2	1-3	2-4	2-5	3-5	4-6	5-6
Duration	4	3	2	7	6	4	2

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