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.(PA) END SEMESTER EXAMINATIONS APRIL-2023
SEMESTER - II
21UPAAT2002 - Business Statistics

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

Section B

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

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

Marks Below	10	20	30	40	50
Frequency	3	8	17	20	22

2. Reconstruct the following index Number by shifting base to :
(i) 2018 and (ii) 2020

Year	2013	2014	2015	2016	2017	2018	2019	2020
Index nos	120	150	160	180	200	200	210	240

3. A class consists of 80 students,25 of them are girls and 55 boys,10 of them are rich and remaining poor,20 of them are fair complexioned. What is the probability of selecting a fair complexioned rich girl?

4. 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?

Contd...

5. From the following data calculate the rank correlation coefficient after making adjustment for tied ranks.

X	48	33	40	9	16	16	65	24	16	57
Y	13	13	24	6	15	4	20	9	6	19

6. From the following data prepare quantity index numbers for the year 2017 taking 2014 as the base year.

Year	**Commodity I**		**Commodity II**		**Commodity III**	
	Price	**Quantity**	**Price**	**Quantity**	**price**	**Quantity**
2014	5	10	8	6	6	3
2017	4	12	7	7	5	4

7. If it rains,a dealer in umbrella can earn Rs.300/- per day. If it does not rains, he can earn Rs.80/- per day. What is the expectation if the probability of a rainy day is 0.57?

8. The following results are obtained from as sample of 10 boxes of biscuits:
   Mean weight of contents = 490 gms.
   Standard deviation of the weight = 9 gms.
   Could the sample come from a population having a mean of 500 gms.

Section C

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

9. Calculate Quartile Deviation and its co efficient from the following data.

Marks	30-32	32-34	34-36	36-38	38-40	40-42	42-44
No. of students	12	18	16	14	12	8	6

10. Calculate the coefficient of correlation and obtain the lines of regression for the following data:

X	1	2	3	4	5	6	7
Y	9	8	10	12	11	13	14

    Obtain an estimate of Y which should correspond to X = 6.2.

11. You are given the value of sample means($\bar{x}$) and range(R) for 10 samples of size each. Draw the mean chart and comment on the state of control of the process:

Sample no	1	2	3	4	5	6	7	8	9	10
$\bar{\mathbf{x}}$	43	49	37	44	45	37	51	46	43	47
R	5	6	5	7	7	4	8	6	4	6

    You may use the following control chart constant for n = 5, $A_2 = 0.58$.

12. A bag contains 10 white and 6 black balls. 4 balls are drawn successively and are not replaced. What is the probability that they are alternately of different colours?

13. A common admission test was conducted in four schools. 5 students were selected at random from school and the marks scored by them are given below. Make an analysis of variance.

Sample X_1	**Sample X_2**	**Sample X_3**	**Sample X_4**
15	20	11	14
18	24	15	16
20	25	17	25
24	18	19	13
13	23	18	22

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