



DAB-161100010403 Seat No. _____

B. B. A. (Sem. IV) (CBCS) (W.E.F.-2016) Examination

April – 2022

Statistics for Business Decisions
(Old Course)

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

Instructions :

- (1) Answer any five questions.
- (2) Each question carries equal marks.

1 (a) What do you mean by statistical quality control ? How 7
it is useful in industry ?

(b) The number of defects per each group containing 7
10 radio sets are as follows. Draw C-chart and give
your comments :

<i>Group No.</i>	1	2	3	4	5	6	7	8	9	10
<i>No. of Defects</i>	12	8	10	16	14	10	2	6	12	9

2 The following table gives mean and range of 10 samples each 14
of size 5. Draw \bar{X} and R charts and state your conclusions :

<i>Sample No.</i>	1	2	3	4	5	6	7	8	9	10
\bar{X}	43	49	37	44	45	37	51	46	43	47
R	5	6	5	7	7	4	8	6	4	6

(For $n = 5; A_2 = 0.58, D_3 = 0, D_4 = 2.11$)

3 (a) Explain the following terms : 7
(i) Acts
(ii) State of nature
(iii) Pay-off matrix

- (b) For the following pay-off matrix find the best act using 7
 (i) Maximin principle
 (ii) Maximax principle
 (iii) Laplace principle

<i>Events</i>	<i>Acts</i>				
	<i>A₁</i>	<i>A₂</i>	<i>A₃</i>	<i>A₄</i>	<i>A₅</i>
<i>S₁</i>	10	25	10	15	20
<i>S₂</i>	-5	10	-5	10	-5
<i>S₃</i>	15	5	10	10	10

- 4 (a) Explain in brief Decision theory. 7
 (b) Form the following pay-off table find the best act according to EMV and EOL criteria : 7

<i>Events</i>	<i>Acts</i>				<i>Probability</i>
	<i>A₁</i>	<i>A₂</i>	<i>A₃</i>	<i>A₄</i>	
<i>S₁</i>	50	10	60	80	0.25
<i>S₂</i>	0	30	45	40	0.40
<i>S₃</i>	80	35	30	45	0.35

- 5 (a) Explain moving average method of forecasting. 7
 (b) Fit a straight line to the following data and form it estimate the production for the year 1998 : 7

<i>Year</i>	1992	1993	1994	1995	1996
<i>Production</i>	40	50	62	58	60

- 6 Using the method of exponential smoothing, taking initial estimate as 100 and $\alpha = 0.4$, prepare forecast : 14

<i>Year</i>	2001	2002	2003	2004
<i>Market value</i>	150	160	155	170

- 7 (a) Explain the following terms : 7
 (i) Type I and type II errors.
 (ii) Level of Significance.
- (b) In a certain city 380 men out of 800 men were found to be smokers. Discuss whether this information supports the view that the majority of men in the city are smokers. 7
- 8 (a) Explain about : 7
 (i) One tailed and two tailed test.
 (ii) Critical region.
- (b) A stenographer claims that he can write at an average speed of 120 words per minute. In 100 trials he obtained an average speed of 116 words per minute with a S.D. of 15 words. Is the claim justified ? 7
- 9 (a) What do you mean by paired t-test ? Explain how it can be applied ? 7
- (b) An IQ test was administered to 5 persons before and after they were trained. The results are given below : 7

<i>Candidate</i>	1	2	3	4	5
<i>IQ before training</i>	110	120	123	132	125
<i>IQ after training</i>	120	118	125	136	121

Test whether there is any change in IQ after the training programme.

- 10 (a) Explain F-test. 7
- (b) The following samples are drawn from two normal populations. Test the hypothesis that the population variances are equal : 7

<i>Sample I</i>	8	10	14	10	13		
<i>Sample II</i>	12	15	11	16	14	14	16