

B.B.A. Semester - 4 (CBCS) Examination**March/April-2023 [OLD COURSE]****STATISTICS FOR BUSINESS DECISION MAKING(ELECTIVE-1)****Time: 2:30 Hours****Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q.1 A. Form the following pay-off table, find the best act according to EMV and EOL (07)
criteria. Also find EVPI:

Event	Act				Probability
	A ₁	A ₂	A ₃	A ₄	
S ₁	50	10	60	80	0.25
S ₁	0	30	45	40	0.40
S ₁	80	35	30	45	0.35

B. For the following pay-off matrix finds the best act using (07)

- (i) Maxi-min principle (ii) Maxi-max principle
(iii) Laplace principle (iv) Horwich Principle ($\alpha = 0.7$).

Event	Act				
	A ₁	A ₂	A ₃	A ₄	A ₅
S ₁	10	25	10	15	20
S ₁	-5	10	-5	10	-5
S ₁	15	5	10	10	10

OR

Q.1 Write short notes. (Any Two) (14)

- (1) Laplace principle (2) Maxi-max principle (3) EOL criterion.

Q.2 Draw $\bar{x}$ and R charts for the following data and state your conclusions: (14)

$\bar{x}$	14.2	13.9	15.5	12.1	14.1	13.2	12.9	13.5	13.1	12.8
R	2	2.5	2.8	2.5	3	1.9	2.1	3.9	3.1	2.1

[For $n=5$, $A_2=0.577$, $D_2=0$, and $D_2=2.115$]

OR

Q.2 A. The number of defects noticed in 20 cloth pieces are given below: (07)

1, 4, 3, 2, 5, 4, 6, 7, 2, 3, 2, 5, 7, 6, 4, 5, 2, 1, 3, 8. Decide whether the process is in a state statistical control.

B. Explain variation due to assignable causes. (07)

Q.3 Fit a second degree parabola and estimated production for 2022. (14)

Year:	2012	2014	2016	2018	2020
Production:	12	4	6	11	8

OR

Q.3 A. Explain moving average method. (07)

B. Fit a straight line to the following data. (07)

Year:	2016	2017	2018	2019	2020
Production:	10	12	8	10	14

Q.4 A. Explain the meaning of Null hypothesis and Alternative hypothesis. (07)

B. The following results were obtained from 100 students. (07)

$$\sum x = 510, \sum x^2 = 2610.$$

Test the hypothesis that population mean is 5.

OR

Q.4 A. The information regarding two groups is given below: (07)

	Mean	S.D.	Number
Group I	1260	35	40
Group II	1240	40	60

B. In city A proportion of male birth in 886 births was 48.50% while in city A and B combined this proportion in 1286 births was 51.60% can we conclude that the proportion of male births in city B is more than city A ? (07)

Q.5 A. Explain t-test. (07)

B. The wages of 10 workers taken at random from a factory are given below. (07)

Wages (Rs.) 570, 575, 576, 568, 577, 580, 570, 575, 590, 585.

Is it possible that the mean wages of all workers of this factory is Rs. 580?

OR

Q.5 A. Explain F-test. (07)

B. The following are samples drawn from two normal populations. Test hypothesis that population variances are equal. (07)

Sample I	20	16	26	27	23	22	
Sample II	27	33	42	35	32	34	38
