



Seat No. \_\_\_\_\_

**HJ-19BBA403**  
**B. B. A. (Sem.-IV) (CBCS)**  
**(W.E.F. 2019) Examination**  
**April - 2023**  
**Statistics for Business Decisions**  
*(New Course)*

Time :  $2\frac{1}{2}$  Hours / Total Marks : 70

**Instruction :** Attempt all the questions.

- 1 (a) Explain the meaning of Business Forecasting. Discuss its importance in industry. **10**
- (b) Obtain the equation of second degree parabola from the following data. Also obtain the estimated production for the year 2000. **10**

Year	1990	1992	1994	1996	1998
Production	12	4	6	11	8

**OR**

- 1 Taking  $\alpha = 0.6$  and the initial forecast as 200 determine the sale forecasts for the respective years. **20**

Year	1975	1976	1977	1978	1979	1980
Sales (In lakhs of Rs.)	230	242	255	271	304	315

- 2 (a) Differentiate between Variable charts and attribute charts. **10**
- (b) The number of defects in different machines manufactured by a company is given below. **10**

Draw C-chart and comment on the state of control.

Machine No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No. of defects	7	8	6	4	8	12	9	8	5	5	9	12	4	6	6

**OR**

- 2 The following table gives mean and range of 10 samples each of size 5. Draw  $\bar{X}$  and R charts and state your conclusion. **20**

Sample No	1	2	3	4	5	6	7	8	9	10
$\bar{X}$	40	42	41	40	42	43	40	40	42	45
R	3	2	5	2	1	4	3	2	5	4

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

- 3 (a) Explain the following terms : **7**  
 (i) Acts (ii) Events (iii) Pay off (iv) Pay off matrix (v) Regret table
- (b) Determine the best act for the following pay off matrix by applying : **8**  
 (i) Maxi-Min principle  
 (ii) Maxi-Max principle  
 (iii) Horwich's principle  
 (iv) Laplace principle

Events	Acts			
	A1	A2	A3	A4
S1	10	6	3	-2
S2	5	-2	4	8
S3	-3	7	-1	6

**OR**

A commodity is manufactured at Rs. 8 and sold at Rs. 14 per unit. **15**  
 The product is such that if it is not sold during a day it becomes worthless. The daily sales record is as follows :

Sales per day	30	40	50	60	70
No. of days	24	24	36	24	12

Find :

- (i) Maximum EMV  
 (ii) Minimum EOL  
 (iii) Optimal Act  
 (iv) EVPI

- 4 (a) Give the advantages of sampling. 7  
(b) Explain : 8  
(i) Lottery method  
(ii) Stratified Random Sampling.

**OR**

- (a) Write note on Theory of Estimation. 7  
(b) State properties of good estimator. 8
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