



DM-010-001407

Seat No. _____

B. B. A. (Sem. IV) (CBCS) Examination

March - 2022

Statistics : Paper - 407

(Business Statistics - 2) (Old Course)

Faculty Code : 010

Subject Code : 001407

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

[Total Marks : 70

- 1 (a) Define the term S.Q.C. and explain its uses. 7
- (b) The number of defects in 10 mobile phones 7
manufactured by a company are as under. Draw C
chart and state your conclusion.

Sample No.	1	2	3	4	5	6	7	8	9	10
No. of defectives	3	0	2	8	4	2	1	3	7	1

OR

- 1 Draw the \bar{X} and R chart for the following data and 14
state your conclusion. [$A_2 = 0.577, D_3 = 0, D_4 = 2.115$]

Sample No.	1	2	3	4	5	6	7	8	9	10
Mean	30	34	45	39	26	29	23	34	37	23
Range	23	39	15	0	20	17	21	11	40	10

- 2 (a) Differentiate between : 7
- (1) Type-I Error and Type-II Error.
- (2) Parameter and Statistic.
- (b) A sample of 900 boxes has mean length 6 inches. 7
Could it be reasonably regarded as a sample from
population whose mean is 5.8 inches and standard
deviation 2.6 inches ? Test at 5% level of significance.

OR

- 2 Fix a Poisson distribution to the following data : 14

X	0	1	2	3	4
Y	65	28	10	4	3

$[e^{-0.65} = 0.522]$

- 3 (a) A machine is designed to produce electronic chips for computer of average thickness of 0.025 cm. A random sample of 10 chips was found to be an average thickness of 0.024 cm. With a standard deviation of 0.002 cm. Test the significance of average at 5% level of significance. 7
- (b) The variance of two random samples of size 9 and 13 are 4 and 3.61 respectively. May the sample be regarded as drawn from the normal population with the same variance ? Test at 5% level of significance. 7

OR

- 3 The following table gives the yield on 15 sample plots under three varieties of seeds. 14

X_1 : 20 21 23 16 20

X_2 : 18 20 17 25 15

X_3 : 25 28 22 28 32

Test at 5% level of significance whether the average yields of plots under different varieties of seeds show significant differences.

- 4 (a) Explain the method of moving average with suitable example. 7
- (b) Fit a straight line trend by the method of least squares for the following data : 7

Year	2006	2007	2008	2009	2010	2011
Production	7	10	12	14	17	24

OR

- 4 Fit an quadratic equation and calculate trend value using least square method for the following data : 14

Year	2008	2009	2010	2011	2012	2013
Sales	79	81	83	78	74	70

- 5 (a) What is game theory ? On which principle it is based ? 7
 (b) From the following payoff matrix of game, calculate 7
 expected value of game.

		Player A	
		H	T
Player B	H	8	-3
	T	-3	1

OR

- 5 Solve the following problem by using algebraic method. 14

		Y's Strategy		
		b_1	b_2	b_3
X's Strategy	a_1	9	8	-7
	a_2	3	-6	4
	a_3	6	7	7
