M.P. Birla Institute of Management LIBRARY

62205

Reg. No. | | | | | | | | |

I Semester M.B.A. (Day & Eve.) Degree Examination, July - 2022

MANAGEMENT

Business Statistics

(CBCS Scheme 2019-2020)

Paper : 1.5

Time : 3 Hours **Maximum Marks : 70**

Instructions to Candidates:

Calculator and statistical tables are allowed.

SECTION - A

Answer any **Five** questions from the following. Each question carries **Five** marks.(5×5=25)

1. What is meant by one tailed and two tailed tests? Illustrate and explain.
2. What is meant by asymetric distribution? Explain the types with suitable example.
3. Following are the marks obtained by students 'A' and 'B' in 7 tests of 100 marks each.

Tests :	1	2	3	4	5	6	7
A	44	80	76	48	52	72	60
B	48	75	54	60	63	69	57

Find who is better in studies and if consistency is the criterian for awarding a prize, who should get the prize?

4. The average monthly sales of 5000 firms are normally distributed. Its mean and standard deviation are Rs. 36,000 and Rs. 10,000 respectively. Find
   a. The number of firms the sales of which are over Rs. 40,000.
   b. Percentage of firms the sale of which will be between Rs. 38,500 and 41,000.
5. The following are the number of workers who did not report to work in their factory on 15 consecutive days
   11,9,13,15,12,20,7,12,10,6,10,14,9,7 and 10
   Test for randomness at α = .05 level of significance.
6. Fit a trend line by the method of least squares for the following data. Forecast the production for the coming year

Year :	2015	2016	2017	2018	2019	2020
Production : (in '000 metric tonnes)	140	146	142	145	150	160

7. What do you mean by probability? Briefly explain different terminology used in Probability.

[P.T.O.

M.P. Birla Institute of Management LIBRARY

62205

SECTION - B

Answer any **Three** questions. Each question carries **10** marks. **(3×10=30)**

8. From the data given below, you are required to
   a. Calculate the correlation coefficient.
   b. Find the standard error and discuss the significance of correlation.
   c. Find the two regression equations.

Sales	42	44	50	54	60	70
Purchases	26	29	35	36	44	50

9. Statistics helps managers to make business decisions Explain this statement by using different statistical tools.

10. Calculate the Marshall - Edgeworth and ideal index number and prove that ideal index number satisfies time reversal and factor reversal test

Commodity	2016		2020	
	Price	Value	Quantity	Value
A	10	1500	160	1760
B	12	1080	100	1300
C	15	900	60	960
D	9	450	40	480

11. A business man has two independent investments A and B available to him, but he lacks the capital to undertake both of them Simultaneously. He can choose to take A first and then stop or if A is successful, then take B or vice - versa. The probability of success on A is 0.7, while for B, it is 0.4. Both investments require an initial capital outlay of Rs. 25,000 and both return nothing if the venture is unsuccessful. Successful completion of A will return Rs. 35,000 (over cost), where as successful completion of B will retur Rs. 50,000 (over cost). Draw the decision tree and determine the best strategy.

SECTION - C

12. **Compulsory.** **(1×15=15)**

The following is the information pertaining to the sample psychological health, ratings of corporate executives in the field of Banking, Manufacturing and Fashion retailing

Banking	41	53	54	55	43	45
Manufacturing	45	51	48	43	39	42
Fashion Retailing	34	44	46	45	51	50

Can we consider the psychological health of corporate executives in the given three fields to be equal at 1% and 5% level of significance.

Draw the necessary hypothesis to prove your argument.