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M. B. A. (First Semester) Examination, Nov.-Dec. 2020

(New Scheme)

(Management Branch)

QUANTITATIVE TECHNIQUES in MANAGEMENT

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 32

Note : *There are **five** units. Each unit consists of three parts (a), (b) and (c). Part (a) of each unit is compulsory. Attempt any **one** part among (b) or (c) in each unit.*

Unit-I

1. (a) What is Matrix? Explain different types of matrices with examples. 6

(b) Solve the following equations by Cramer's rule 10

$$3x + 4y + 5z = 38$$

$$2x - y + 8z = 33$$

$$4x + 3y + 2z = 25$$

Or

(c) A man borrows ₹ 1,000 and agrees to repay with total interest of ₹ 140 in 12 installments. Each install-ment is being less than the preceding by ₹ 10. What should be his first installment? 10

Unit-II

2. (a) Define Arithmetic Mean. Discuss its merits and demerits. 6

   (b) Compute median for the informatino given below : 10

Class	Frequency
100-110	6
110-120	8
120-130	17
130-140	23
140-150	35
150-160	20
160-170	16
170-180	5

Or

(c) Calculate the standard deviation from the following data : 10

Size of item	6	7	8	9	10	11	12
Frequency	3	6	9	13	8	5	4

Unit-III

3. (a) Define the term probability and explain its importance. 6

   (b) From a pack of playing cards one card is drawn. What is the probability that : 10

   (i) It is either a King or Queen

   (ii) It is either a Club or Diamond

Or

(c) A bag contains 6 red, 4 white and 8 blue balls. If three balls are drawn at random, find the probability that one is red, one is white and one is blue. 10

Unit-IV

4. (a) What do you mean by sampling? Describe the main types of sampling methods. 6

   (b) A machine is designed to produce insulating washers for electrical devices of average thickness of ·025 cm.

A random sample of 10 washers was found to have an average thickness of ·024 cm with a standard deviation of ·002 cm. Test the significance of the deviation. (Value of t for 9 degree of freedom at 5% level of significance is 2·262)   10

Or

(c) Calculate Karl Pearson's Coefficient of Correlation between the values X and Y given below :   10

X	65	66	67	67	68	69	70	72
Y	67	68	65	68	72	72	69	71

Unit-V

5. (a) What is time series? What is the need to analyze the time series?   6

(b) Using Semi-average method determine the trend for the following data :   10

Year	Production
1994	20
1995	24
1996	22
1997	25
1998	26

1999	27
2000	25
2001	23
2002	28
2003	32
2004	35

Or

(c) What is an Index Number? Explain the use of index numbers.   10