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M. B. A. (First Semester) Examination, Nov.-Dec. 2021

(New Scheme)

(Management Branch)

QUANTITATIVE TECHNIQUES in MANAGEMENT

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 32

Note : Each unit contains three questions, attempt any two.

Unit-I

1. (a) A firm produces 1000 units of its product in the first year and produced 14500 write in 10 years. Find

the increase per annum and also find the output in the fifteenth year. 8

(b) Solve the following equations using matrix method : 8

$$x + y + z = 9$$

$$2x + 5y + 7z = 52$$

$$2x + y - z = 0$$

Or

(c) A co-operative society has 10 dozen books of physics, 8 dozen books of chemistry and 5 dozen books of mathematics. Selling price of each book is Rs. 8.30, Rs. 3.45 and Rs. 4.50 respectively. How much amongst will be received from selling all the books? Solve the problem by method of matrix. 8

Unit-II

2. (a) An incomplete distribution is given below : 8

Variable	Frequency
10-20	12
20-30	30
30-40	?

40-50	'65
50-60	?
60-70	25
70-80	18
	229

You are given that the median value is 46.

(i) Using the median formula fill up the missing frequencies.

(ii) Calculate the arithmetic mean of the completed table.

(b) A poultry-keeper sells 18 dozen eggs of which 6 dozens are large grade eggs selling at Rs. 3.50 per dozen 4 dozens and medium grade at Rs. 3.25 per dozen and the rest are small. Find the selling price per dozen of the small eggs if the poultry-keeper receives an average price of 25 paise per egg on the whole consignment. 8

(c) The following table gives goal scored by two teams A and B in a football season. Find the team which is more consistent in its performance : 8

No. of Goals Scored in a match	No. of football Matches Played	
	Team A	Team B
0	27	17
1	9	9
2	8	6
3	5	5
4	4	3

Unit-III

3. (a) Define probability and explain the importance of the concept in decision making?   8

(b) In an intelligence test administered on 1000 students, the average was 42 and S.D. 24. Find :   8

     (i) The number of students exceeding a score 50. [Given z (0·333) = 0·1293]

     (ii) The number of students lying between 30 and 54. [Given z (0·5) = 0·1915]

(c) In a factory manufacturing fountain pens, machine A, B and C manufacture 30%, 30% and 40% of

the total production of fountain pens, respectively of their output 4%, 5% and 10% of the fountain pens are defective. It one fountain pen is selected at random, and if it is found to be defective, what is the probability that it is manufactured by machine C?   8

Unit-IV

4. (a) What is meant by two-tailed and one tailed test of hypothesis. Illustrate your answer with example.   8

(b) An IQ test was administered to 5 persons before and after they were trained. The results are given below :

Candidates	I	II	III	IV	V
IQ before training	110	120	123	132	125
IQ after training	120	118	125	136	121

Test whether there is any change in IQ after the training program. $\left[t_{0.01}(4) = 4.6 \right]$ 8

(c) Find out the coefficient of correlation between X and Y by the method of rank differences :

X : 22 24 27 35 21 20 27 25 27 23

Y : 30 38 40 50 38 25 38 36 41 32   8

Unit-V

5. (a) 'Business Forecasting' is the eyes of modern business. Comment upon this statement and point out the limitations of business forecasting.   8

(b) Calculate index number for 1991 on the basis of the prices 1995 from the following data :   8

Items	Prices	
	1991	1995
A	30	48
B	60	63
C	15	18
D	6	9
E	21	42

Or

(c) Determine the trend line of the following data by semi-average method :   8

Year	Import (Rs. Crore)
1966	20

1967	24
1968	19
1969	18
1970	24
1971	25
1972	21
1973	23
1974	28
1975	22
1976	26