Code: 19HS2501A

III B.Tech - I Semester – Regular Examinations – JANUARY 2022

QUANTITATIVE TECHNIQUES FOR MANAGEMENT
(Common for CIVIL, ME, IT)

Duration: 3 hours   Max. Marks: 70

Note: 1. This question paper contains two Parts A and B.
2. Part-A contains 5 short answer questions. Each Question carries 2 Marks.
3. Part-B contains 5 essay questions with an internal choice from each unit. Each question carries 12 marks.
4. All parts of Question paper must be answered in one place.

PART – A

1. a) Define the term data in statistics and its types.
   b) Briefly explain the objectives of measures of central tendency.
   c) Explain the characteristics of measures of dispersion.
   d) Briefly explain various measures of skewness.
   e) Explain about fitting of a power curve.

PART – B
UNIT – I

2. a) Explain the Importance of statistics.   6 M
   b) Explain different methods of collection of data.   6 M
                        OR
3. a) Explain the various functions of statistics.   6 M
   b) Explain the limitations of statistics.   6 M

UNIT – II

4. a) Calculate Weighted Arithmetic Mean of the given information   6 M

Income(Rs.)	5000	3400	1500	800	750	500
Weights	5	8	10	15	25	47

b) Calculate median by using the following frequency distribution   6 M

Expenditure Rs.	Less than 15	25	35	45	55	65	75	85	95
No.of Units	5	12	21	40	68	82	92	100	105

OR

5. a) Calculate mode for the following data   6 M

Marks	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99
Students	2	10	18	20	38	25	16	10	8	3

b) Compute Harmonic Mean of the following data   6 M

X	25.55	15.0	1.5	2.52	0.02	6.61	25.24	35.61	0.61	0.03

UNIT-III

6. a) Compute quartile deviation and its co-efficient for the information given below: 6 M

Mid Values	5	15	25	35	45	55	65	75	85	95
Frequency	12	15	18	21	36	22	17	13	10	11

b) Compute Mean Deviation and Co-efficient of Mean Deviation for A series and B series   6 M

A	105	112	110	125	138	140	161	175	185	190
B	22	24	26	28	30	32	34	40	44	50

7. a) Compute Standard deviation and its co-efficient for the sales in a year by 100 salesmen. 6 M

Sales (Rs.000)	50	100	150	200	250	300	350
Salesmen	4	14	22	30	20	8	2

b) What are the limitations of Standard Deviation? 6 M

UNIT – IV

8. a) Calculate Karl Pearson's co-efficient of skewness for the information given below: 6 M

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	10	15	20	30	10	10	3	2

b) Calculate Bowley's co-efficient of skewness for the following distribution 6 M

No. of Children per family	0	1	2	3	4	5	6
No. of families	7	10	16	25	18	11	8

OR

9. a) Following are the complaints received in 10 bus stations in a day. Calculate moments. 6 M

S.No.	1	2	3	4	5	6	7	8	9	10
Complaints	2	4	5	7	8	9	11	12	13	14

b) Find the measure of Kurtosis for the following data. 6 M

Class	10-20	20-30	30-40	40-50	50-60	60-70	70-80
f	2	5	13	15	12	8	5

UNIT – V

10. a) By the method of least squares, find a straight line that best fits the following data points   6 M

x	0	1	2	3	4
y	1.0	2.9	4.8	6.7	8.6

b) Fit a 2nd parabola to the given data   6 M

x	1	3	4	6	8	9	11	14
y	1	2	4	4	5	7	8	9

OR

11. a) Fit a parabola $y=ax^2+bx+c$ to the given data   6 M

x	10	12	15	23	20
y	14	17	23	25	21

b) Fit a straight line using the method of least squares.   6 M

x	1	2	3	4	5	6	7	8	9	10
y	52.5	58.7	65.0	70.2	75.4	81.1	87.2	95.5	102.2	108.4