

**P.E.S. College of Engineering, Mandya - 571 401***(An Autonomous Institution affiliated to VTU, Belagavi)***First Semester, Master of Business Administration (MBA)****Semester End Examination; June - 2022****Business Analytics**

Time: 3 hrs

Max. Marks: 100

Note: Answer all FOUR full questions from PART - A and PART - B (Case Study) is compulsory.

Q. No.	Questions	Marks	BLs	COs	POs
PART - A					

- 1 a. Spell out the issues involved in the collection of secondary data. 10 L2 CO1
- b. Discuss the various types of data used in statistics. 10 L4 CO2

OR

- 2 a. State the components of statistical table. 10 L6 CO1
- b. The data below shows the weekly rupee earnings of 80 female workers engaged in weaving trade at Ahmadabad;

1052	1088	1077	1078	1089	1089	1082	1084	1088	1090
1099	1101	1102	1055	1063	1073	1078	1113	1086	1089
1080	1095	1092	1103	1118	1098	1097	1081	1061	1080
1083	1079	1111	1064	1056	1068	1055	1073	1075	1083
1085	1086	1083	1090	1105	1090	1069	1058	1072	1073
1086	1071	1070	1065	1059	1080	1084	1085	1075	1064
1087	1091	1108	1094	1097	1093	1107	1095	1082	1116
1085	1070	1076	1069	1061	1114	1089	1074	1105	1082

10 L2 CO2

Summarize a frequency table for the data. Using an appropriate scale and present the same information in histogram.

- 3 a. Define arithmetic mean. What are its important properties? 10 L1 CO3
- b. Using the data presented below draw;
- i) Simple bar chart for revenue receipts
- ii) Component chart showing tax and non-tax revenue

Revenue Receipts, Tax Revenue & Non-Tax Revenue

Year	Revenue Receipts	Tax Revenue	Non-tax revenue
1995-1996	110130	81939	28191
1996-1997	126279	93701	32578
1997-1998	133901	95672	38229
1998-1999	150532	105135	45397
1999-2000	182840	132365	50475

10 L6 CO3

OR

4 a. i) Assume there are five observations, 5, 12, 20, 50, and 90 along with the corresponding weights 15, 10, 7, 4 and 2. Calculate the Geometric mean for the data.

ii) Assume that an investor buys Rs.1200 worth of shares of a company each month. If he has bought shares at a price of Rs. 10, Rs.12, Rs. 15, Rs.20 and Rs. 24 per shares during each of the first five months of the year. Calculate the average share price paid by the investor using the harmonic mean.

10 L6 CO3

b. From the frequency distribution given below, find;

i) Mean ii) Median iii) Mode

10 L4 CO2

Class intervals	50-52	53-55	56-58	59-61	62-64
Frequencies	5	10	21	8	6

5 a. Define Dispersion. Also justify why it is necessary to measure dispersion?

10 L1 CO1

b. In a sample, 100 students doing a masters programme in management were tested in a general knowledge paper carrying 100 marks. At the end of the exercise, they were found distributed according to the marks obtained as under. Find the variance;

10 L1 CO1

Marks obtained	30-34	35-39	40-44	45-49	50-54	55-59	60-64
No. of students	5	8	12	20	27	20	8

OR

6 a. Define skewness. When does distribution get positively and negatively skewed?

10 L1 CO2

b. A village was surveyed to know the average family size. A sample of 60 families revealed the distribution of family size as under,

Family size	03-05	06-08	09-11	12-14	15-17	18-20	21-23
No. of families	03	08	12	21	09	05	02

10 L1 CO1

Find Pearsonian first order coefficient of skewness.

7 a. The following data relate to marketing expenditure in Rs. Lac and the corresponding sale of a product is Rs. Crore. Estimate the correlation for the given data;

10 L4 CO2

Marketing expenditure	10	12	15	20	23
Product sales	14	17	23	21	25

b. "Regression and Correlation are two sides of the same coin". Explain.

10 L4 CO2

OR

8 a. The total annual fertilizer consumption in thousand tonnes during 1995-2001 in XYZ village of Karnataka are recorded as given below;

10 L5 CO2

- i) Fit a straight line trend by the method of least squares and compute the trend quantities
- ii) What has been the monthly increase in fertilizer consumption?
- iii) Also eliminate the trend variations from the fertilizer consumption data

Year	1995	1996	1997	1998	1999	2000	2001
Consumption	50	56	60	68	70	75	78

- b. A Popular consumer cooperative store located in a labour colony reported the average monthly data on prices and quantities sold of a group of selected items of mass consumption as given below. Compute;
 - i) Laspeyre’s price index for 2002 using 1998 as the base
 - ii) Laspeyer’s price index for 1998 using 2002 as the base
 - iii) Paasche’s price index for 2002 using 1998 as the base
 - iv) Paasche’s price index for 1998 using 2002 as the base

10 L1 CO2

Items	January 1998		January 2002	
	Prices (Rs. per kg)	Quantities sold(kg)	Prices (Rs. per kg)	Quantities sold(kg)
Veg. Oil	26.00	40.00	31.00	45.00
Pulses	28.00	90.00	32.00	100.00
Sugar	16.00	120.00	19.00	20.00
Rice	15.00	110.00	18.00	130.00

PART - B (Compulsory)

9. Case Study:

The marks obtained by 10 students in their graduation and the MBA entrance test were found as given below:

From these paired data, find;

- a. The two regression equations. 10 L4 CO2
- b. The coefficient of correlation between the two sets of marks 5 L4 CO2
- c. Cross-check the result obtained under (b) above

Graduation	50	52	55	60	62	65	65	66	70	75
Entrance Test	52	50	57	65	65	62	65	65	71	78

5 L4 CO2

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