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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

First Semester, Master of Business Administration (MBA)

Semester End Examination; Jan - 2017

Quantitative Technique - I

Time: 3 hrs *Max. Marks: 100*

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

PART - A

1 a. Statistics deals with Statistics. Comment. 10

b. State the components of statistical table. What factor should govern framing a table? 10

OR

2 a. Draw the histogram for the following data : 10

Variable	Frequency	Variable	Frequency
100 - 110	11	140 - 150	33
110 - 120	28	150 - 160	20
120 - 130	36	160 - 170	8
130 - 140	49		

b. A survey of 370 students from commerce faculty and 130 students from science faculty revealed that 180 students were studying for only CA examination, 140 for only costing examination and 80 for both CA and costing examinations. The rest had offered part-time management courses. Of those studying for costing only 13 were girls and 90 boys belong to commerce faculty. Out of 80 studying for both CA and costing, 72 were from commerce faculty amongst which 70 were boys. Amongst those who offered part-time management course, 50 boys were from science faculty and 30 boys and 10 girls from commerce faculty. In all there were 110 boys in science faculty. 10

Present the above information in a tabular form. Find the number of students from science studying for part-time management courses.

3 a. A college has published in the student's magazine the following data on the number of the students who appeared in the entrance test for admission to various professional programs. Find the average performance of the students in terms of admissions to the various professional programs. 10

Entrance Test for	No. of students who appeared in the test	No. of students who got Admission
MBA	60	15
MCA	40	20
MIT	50	10
B.Ed.	120	60

b. Given below is the distribution of marks obtained by 60 students in their final examination. Compute: i) Arithmetic mean ii) Mode iii) Median 10

Marks	20	30	40	50	60	70
No. of Students	8	12	20	10	6	4

OR

4 a. How mean, median and mode are empirically related? Under what conditions does the relationship hold? 10

b. In a sample, 100 sample students doing a master 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 marks obtained as under.

Find: i) The range of the distribution ii) Quartile deviation 10

iii) Coefficient of Quartile deviation iv) Mean absolute deviation

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

5 a. Which one of the two distribution series given below is more consistent?

Class Intervals	Series A	Series B
10 - 20	10	18
20 - 30	16	22
30 - 40	34	38
40 - 50	38	34
50 - 60	24	20
60 - 70	18	8

10

b. Calculate Pearson's coefficient of skewness:

x:	12.5	17.5	22.5	27.5	32.5	37.5	42.5	47.5
f:	28	42	54	108	129	61	45	33

10

OR

6 a. An algebra test was given to 400 high school children of whom 150 were boys and girls 250. The results were as follows :

$n_1 = 150$ $n_2 = 250$

$\overline{X}_1 = 72$ $\overline{X}_2 = 73$

$\sigma_1 = 7.0$ $\sigma_2 = 6.4$

10

Find the mean and the standard deviation of combined groups.

b. Find the standard deviation, and co-efficient of variation from the following data :

Marks	No. of students	Marks	No. of students
Up to 10	12	Up to50	157
Up to 20	30	Up to 60	202
Up to 30	65	Up to 70	222
Up to 40	107	Up to 80	230

10

Contd….3

7 a. Coefficient of correlation between X and Y for 20 items is 0.3; mean of X is 15 and that of Y 20, standard deviation are 4 and 5 respectively. At the time of calculation one item 27 has wrongly been taken as 17 in case of X series and 35 instead of 30 in case of Y series. Find the correct coefficient of correlation. 10

b. Obtain the rank correlation coefficient between the variables X and Y from the following pairs of observed values. 10

X	50	55	65	50	55	60	50	65	70	75
Y	110	110	115	125	140	115	130	120	115	160

OR

8 a. Given below are price-quantity data, with prices quoted ` in per kg and production in quintals. Find :

i) Laspeyre's price index for 1995 using 1990 as base

ii) Laspeyre's price index for 1990 using 1995 as base

iii) Paasche's price index for 1995 using 1990 as the base

iv) Passche's Price index for 1990 using 1995 as the base. 10

Item	1990		1995	
	Price	Production	Price	Production
Beef	15	500	20	600
Mutton	18	590	23	640
Chicken	22	450	24	500

b. The total annual fertilizer consumption in thousand tones during 1995-2001 in XYZ village of Karnataka state was recorded as given below.

i) Fit a straight line trend by the method of least squares and compute the trend quantities. 10

ii) What has been the monthly increase in fertiliser consumption?

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

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

b) The coefficient of correlation between two sets of marks 20

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

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