M.C.A. / P.G.D.C.S. First Semester (First Year) (CGS)

15503 : Computer Oriented Statistical Methods : 1 MCA 3

P. Pages : 3 | AU - 3150

Time : Three Hours | Max. Marks : 80

Notes : 1. Due credit will be given to neatness and adequate dimensions.
2. Assume suitable data wherever necessary.
3. Illustrate your answer necessary with the help of neat sketches.
4. Use of pen Blue/Black ink/refill only for writing the answer book.

1. a) Explain diagrammatic representation of statistical data with its different types. 6

b) The following table given the distribution of outlay in a five year plan of India under the major heads of development expenditure. 7

	Heads of Expenditure	Expenditure (In crores of Rs.)
a)	Agriculture & community development	8000
b)	Irrigation and Power	4000
c)	Industry and Mining	7000
d)	Transportation and communication	5500
e)	Miscellaneous	2500
	Total	27,000

Represent the above information by a Pie-chart.

OR

2. a) Discuss the limitations of statistics. 6

b) Convert the following distribution into "more than" frequency distribution. 7

Weekly wages less than (Rs.)	No. of workers
20	41
40	92
60	156
80	194
100	201

Also draw "less than" and "More than" ogive curve.

3. a) Define standard Deviation. Also write its merits and demerits. 6

b) Calculate the mean & median for the following frequency distribution. 7

Marks	No. of students
0-10	6
10-20	5
20-30	8
30-40	15
40-50	7
50-60	6
60-70	3

OR

4. a) Define Geometric Mean and Harmonic Mean with an example. 6

b) Find the standard deviation of the following distribution. 7

Age :	20-25	25-30	30-35	35-40	40-45	45-50
No. of Persons:	170	110	80	45	40	35

5. a) What is Kurtosis? Explain its different types with suitable diagram. 7

b) Calculate Karl Pearson's coefficient of skewness from the following data. 7

Size :	1	2	3	4	5	6	7
Freq :	10	18	30	25	12	3	2

OR

6. a) Define Moments. How are they useful in analyzing the different aspects of frequency? 6

b) Calculate Bowley's coefficient of skewness from the following data: 8

Marks	No. of students
0-15	20
15-30	30
30-45	30
45-60	35
60-75	45
75-90	15
above 90	5

7. a) Define Rank correlation coefficient. Discuss the situation where Karl Pearson's correlation coefficient is preferred. 6

b) Calculate the correlation coefficient between the height of fathers and sons from the given data: 7

Height of fathers (in inches)	Height of sons (in inches)
64	66
65	67
66	65
67	68
68	70
69	68
70	72

Also find its probable error.

OR

8. a) What is correlation? Explain significance of coefficient of correlation. 6

b) The ranking of 10 students in two Subjects A and B are as follows:- 7

A :	3	5	8	4	7	10	2	1	6	9
B :	6	4	9	8	1	2	3	10	5	7

What is the coefficient of rank correlation.

9. a) Explain linear and Non-linear regression. 7

b) From the following data, obtain the two regression equations: 7

Sales :	91	97	108	121	67	124	51	73	111	57
Purchase :	71	75	69	97	70	91	39	61	80	47

OR

10. a) State and prove properties of Regression coefficient. 7

b) Find the mean values of the variables X and Y and correlation coefficient between them from the following regression equations? 7

$2Y - X - 50 = 0$

$3Y - 2X - 10 = 0$

11. a) Discuss the importance of time series analysis in business. 6

b) Fit a trend line to the following data by the least square method. 7

Year :	1975	1977	1979	1981	1983
Production (In '000 tons) :	18	21	23	27	16

Estimate the production in 1980 and 1985.

OR

12. a) Explain briefly the method of moving averages for calculating the trends. 6

b) Fit a trend function $Y = AB^X$ to the following data. 7

X:	1	2	3	4	5
Y :	1.6	4.5	13.8	40.2	135.0

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