

STATISTICAL TECHNIQUES

Duration: 2 hours

Max. Marks: 80

Instructions: 1) All questions are compulsory (choice is internal)

2) Start each new question on a fresh page

3) Figures to the right indicate full marks

4) Use of calculators allowed

5) Graph paper will be issued on request

Q.1 Attempt the following:

a) Define Sample, Statistics, variable and attribute. (3)

b) Represent the following data by a sub-divided bar diagram: (6)

College	No. Of students			
	Arts	Science	Commerce	Total
X	150	100	400	650
Y	130	240	530	900

c) Calculate the median of the distribution given below: (7)

Marks:	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
Frequency:	4	6	12	6	7	5

OR

Q.1 Attempt the following:

x) Define Statistics and state its function. (3)

y) Draw an ogive curve from the following data, hence locate the median graphically. (6)

Marks Scored:	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
No. of students	15	5	10	6	15

z) The mean monthly salary paid to 77 employees in a company was Rs.78. The mean salary of 32 employees was Rs.75 and that of 25 others was Rs.82. Find the mean salary of the remaining employees. (7)

Q.2 Attempt the following:

a) Distinguish between exclusive class interval and inclusive class intervals: (3)

b) The mean weight of 80 students in a class is 56.25 kg. The mean weight of boys in the class is 60kg and that of girls is 50kg. Find out the number of boys and girls in the class (6)

c) Calculate the value index number for the following: (7)

Commodity	2001		2002	
	price	quantity	Price	quantity
P	14	70	18	95
Q	16	80	20	50
R	12	55	14	75
S	20	95	22	60
T	18	85	16	85

x) Explain briefly primary and secondary data. (3)

y) Find the Quartiles for the data given below: (6)

Marks:	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
No. of students:	6	5	15	13	6

z) Calculate the fisher's quantity index number: (7)

price		Quantity	
1966	1968	1966	1968
1.80	2.0	152	166
2.60	3.0	100	108
3.50	3.90	64	66

Q.3 Attempt the following:

a) Write a short note on one dimensional diagrams. (3)

b) Obtain the trend values for the following data by taking the moving average of length three (6)

Year:	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Sales(in 000's Rs.)	29	37	43	34	40	42	55	43	47	51	63

c) Calculate quartile deviation and its coefficient from the following data: (7)

Class intervals:	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
Frequency:	0	8	6	9	9	6	6

OR

Q.III Attempt the following:

x) Explain briefly "ogives". (3)

y) For following time series, Calculate the trend values by using five yearly moving averages: (6)

Year:	2000	2001	2002	2003	2004	2005	2006
Production:	93	90	80	68	75	64	50

z) Calculate the mean deviation from mode for the following series: (7)

Class:	140 – 150	150 – 160	160 – 170	170 – 180	180 – 190	190 – 200
Frequency:	4	6	10	12	9	3

Q.4 Attempt the following:

a) Write a short note on deflating of index number. (3)

b) Find the mean and median for the following data: (6)

X:	0	1	2	3	4	5
F:	18	19	23	21	16	25

g. Draw the trend line by the free hand curve method:

(7)

Year:	1994	1995	1996	1997	1998	1999
Production (in crore Rs.):	7	10	12	14	17	24

OR

Q.IV Attempt the following:

- x) Define time series and state its various components. (3)
y) Calculate the Standard Deviation of the following data: (6)

X:	1	2	3	4	5	6
F:	2	6	12	7	2	1

- z) Fit a straight line trend by the method of least squares in the following: (7)

Year:	1994	1995	1996	1997	1998	1999
Production (in crore Rs.):	7	10	12	14	17	24

Q.5 Attempt the following:

- a) Write a short note on classification data. (3)
b) The arithmetic mean and Standard deviation of the monthly profits of two companies A and B for a year is given below. Comment on its efficiency and consistency of these firms with respect to their profits. (6)

Company	A.M.	S.D.
A	100	25
B	80	15

- c) Calculate real wage index no. and interpret: (7)

Year	1970	1971	1972	1973	1974	1975	1976	1977	1978
Index No.	100	110	120	130	135	140	145	170	200
Income:	300	310	330	350	355	360	370	400	450

OR

Q.V Attempt the following:

- x) Explain briefly Qualitative and Quantitative data. (3)
y) Find the missing frequency p for the following distribution whose mean is 50: (6)

X	10	30	50	70	90
f	17	p	32	24	19

- z) Prepare a chain base index number for the data given below: (7)

Year:	2001	2002	2003	2004	2005	2006	2007	2008
Index No.:	120	130	138	145	150	156	159	163