

Vidya Vikas Mandal's
Shree Damodar College of Commerce & Economics
SYBCOM, Semester III, Semester End Examination-October, 2018
Statistical Techniques-I (Old course)

Time: 2 hours

Maximum Marks: 80

INSTRUCTIONS:

1. All questions are compulsory (internal choice is provided).
2. Figures to the right indicate full marks.
3. Graph paper will be provided on request.
4. Non Programmable Calculator are allowed.

Q.1 Attempt the following:

- (a) Define Statistics and state its function. [3]
- (b) Find the median for the following data. [6]

Marks Scored	0-10	10-20	20-30	30-40	40-50
No. of students	20	25	36	30	23

- (c) The following data represent weights, recorded to the nearest kilogram, of 30 students selected from a school of 500 students: [7]

21	30	40	25	26	22	39	31	29	36
38	35	34	33	30	23	27	27	29	31
33	22	21	36	40	31	33	30	37	36

- (1) In the above data, state what is the (i) Population (ii) Sample and (iii) Variate.
- (2) Make a frequency distribution table for the above data with class intervals 20-24, 25-29.
- (3) State the class boundaries and the class mark of the class interval 25-29 and find the number of students with weights of less than or equal to 34.

OR

Q. I Attempt the following:

- (x) What do you mean by 'Primary' and 'Secondary' data? What are the various methods used in collecting primary data? [3]
- (y) Draw the histogram for the following data: [6]

Weights in Kgs	25-30	30-35	35-40	40-45	45-50
No. of students	6	11	15	10	5

- (z) Calculate the 4th decile and 25th percentile for the following data: [7]

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	3	8	12	14	10	6	5	2

Q.2 Attempt the following:

- (a) What is an ogive curve? For what purpose is it used? [3]
 (b) Find arithmetic mean of variable taking following values. [6]

x	10	15	20	25	35
f	3	10	6	7	5

- (c) Construct price index number from the following data using : [7]
 (i) Laspeyre's formula (ii) Paasche's formula.

Commodity	Base Year		Current Year	
	Price(p_0)	Quantity(q_0)	Price (p_1)	Quantity(q_1)
A	8	5	10	6
B	6	6	8	8
C	10	7	15	5
D	12	9	10	7

OR

Q. II Attempt the following:

- (x) Distinguish between open classes and close classes. [3]
 (y) Find mode for the following distribution. [6]

class interval	0-20	20-40	40-60	60-80	80-100
f	5	12	15	10	8

- (z) Construct simple aggregate price index number for the year 2008 with the base year 2005: [7]

Commodity	Price in 2005	Price in 2008
A	3	6
B	4	5
C	2	4
D	4	4
E	3	5

Q.3 Attempt the following:

- (a) Distinguish between frequency curve and frequency polygon. [3]
 (b) Fit a straight line trend to the following time series and estimate the sales for the year 2008. [6]

Year	2001	2002	2003	2004	2005	2006	2007
Sales in lakhs	42	48	45	50	52	55	53

- (c) Calculate the standard deviation of the height of 8 children. [7]

Child No.	1	2	3	4	5	6	7	8	Total
Height in cms	90	94	95	97	100	103	105	108	792

OR

Q. III Attempt the following:

- (x) Define Histogram and state its uses. [3]
 (y) Find trend values using 3 yearly moving averages. [6]

Year	1989	1990	1991	1992	1993	1994	1995	1996
No. of Students	1500	1700	1800	1750	1850	2000	1950	1900

- (z) Find the mean deviations from median. [7]

x	1	2	3	4	5	6	7
f	10	12	15	20	10	9	4

Q.4 Attempt the following:

- (a) Define time series and state its various components. [3]
 (b) The arithmetic mean of marks in mathematics for two divisions A,B are 80 and 70 respectively. Their standard deviations were 12 and 8 respectively. Which division has more uniformity? [6]
 (c) Find five yearly moving average. [7]

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005
Time series	87	90	92	98	105	93	100	110	125

OR

Q. IV Attempt the following:

- (x) What is an index number? [3]
 (y) Compute Quartile Deviation for the following distribution: [6]

Rainfall (in cms)	20-25	25-30	30-35	35-40	40-45	45-50	50-55
No. of years	2	5	8	12	10	7	6

- (z) Find the four yearly moving averages for the following data: [7]

Year	2001	2002	2003	2004	2005	2006	2007	2008
Production	68	62	61	63	65	68	63	67

Q. 5 Attempt the following:

- (a) Explain with example inclusive and exclusive class intervals. [3]
 (b) Arithmetic mean of heights of 100 boys is 150cm and that of 50 girls is 144 cm. Find combined arithmetic mean of 150 items. [6]

(c) Calculate real income from the following data:

[7]

Year	2001	2002	2003	2004	2005
Income	700	840	980	1050	1180
Index No.	140	175	200	210	250

Q. V Attempt the following:

(x) Explain the various methods of data collection.

[3]

(y) The following results are obtained from wages distribution of workers in two factory X and Y:

[6]

Factory	No. of Workers	Mean monthly wages	Variance of wages
X	600	450	100
Y	400	500	144

1. Which factory pays large amount as monthly wages?
2. Which factory has greater variability in individual wages?
3. What is the mean monthly wage of all 1000 workers?

(z) Splice the following two index number series continuing series A forward.

[7]

Year	2001	2002	2003	2004	2005	2006	2007
Series A	112	138	150	-	-	-	-
Series B	-	-	100	120	140	130	150
