

Goa Vidyaprasarak Mandal's
Gopal Govind Poy Raiturcar College of Commerce and Economics
Ponda - Goa
B.Com. (SEMESTER - III) Examination, October 2017

STATISTICAL TECHNIQUES

Duration: 2 hours

Marks: 80

- Instructions : (i) Attempt All Questions.
(ii) Figure to the right indicate full marks.
(iii) Graph papers and log tables will be supplied on request.

Q 1 A. Give three limitations of Statistics. (3)

B. Marks scored by 30 students are given below

41 55 48 47 53 48 33 32 42 55 44 38 60 65 71
80 41 53 47 48 55 20 31 34 42 51 35 30 26 25

Prepare a frequency distribution table with intervals of 10.

Also find the percentage and relative frequencies (6)

C. The mean of 100 items was 46. Later it was discovered that an item 16 was read as 61 and another item 43 was read as 34. It was also found that the number of items was 90 and not 100. Find the correct mean. (7)

OR

Q 1 X. "There is hardly any field which does not fall within the scope of Statistics"
Comment. (3)

Y. The following are the profits earned by 1400 companies during 2003- 2004

Profit (₹ Lakh)	Number of companies
200 - 400	500
400 - 600	300
600 - 800	280
800 - 1000	120
1000 - 1200	100
1200 - 1400	80
1400 - 1600	20

Calculate the mean profit (Use the short cut method) (6)

Z. For the following data, find the cumulative frequencies of i) less than type
ii) greater than type . Hence answer the following questions :

- a) How many employees have their salary less than ₹ 5000 ?
b) How many employees earn more than ₹ 6000 ?

Monthly salary (in ₹)	Number of employees
3000 – 4000	12
4000 – 5000	18
5000 – 6000	27
6000 – 7000	20
7000 – 8000	17
8000 – 9000	6

Q 2 A. Explain the terms “Primary data” and “Secondary data” (3)

B. Calculate D_7 and P_{60} for the following frequency distribution

Class interval	10–20	20–30	30–40	40–50	50–60	60–70	70–80
Frequency	1	3	11	21	43	32	9

C. Represent the following data by a histogram

Weekly wages	10–15	15–20	20–25	25–30	30–40	40–60	60–80
Number of workers	7	19	27	15	12	12	8

OR

Q 2 X. Describe “Indirect personal interview” as a method of collecting data. (3)

Y. For the following data, calculate the mean deviation from $a = 28$

Class interval	10 – 15	15 – 20	20 – 25	25 – 30	30 – 35	35 – 40
Frequency	15	22	25	32	35	38

Z. Represent the following data by a pie diagram

Item	Food	Clothing	Recreation	Education	Rent	Miscellaneous
Expenditure (in ₹)	87	24	11	13	25	20

Q 3 A. The following are the prices of shares of a company from Monday to Saturday

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Price	200	210	208	160	220	250

Calculate the coefficient of range. (3)

B. Calculate standard deviation and variance from the following data

Marks	10	20	30	40	50	60
Number of students	8	12	20	10	7	3

C. Calculate median for the following data

Mid value	115	125	135	145	155	165	175	185	195	
Frequency	6	25	48	72	116	60	38	22	3	(7)

OR

Q 3 X. Write a short note on Bar diagrams. (3)

Y. The following table gives the weights of boys and girls studying in a college.

	Boys	Girls
Number	100	50
Mean weight	60 kg	45 kg
Variance	9	4

Find the standard deviation of the weights of the girls and boys taken together. (6)

Z. Calculate Karl Pearson's coefficient of skewness for the following data:

Class interval	20 - 40	40-60	60-80	80-100	100-120
Frequency	20	50	10	40	25

(7)

Q 4 A. Explain the different components of Time series (3)

B. Fit a trend line to the following data by method of semi averages.

Year	1992	1993	1994	1995	1996	1997	1998
Production (lakhs ₹)	23	25	28	30	35	36	40

(6)

C. From the following data, compute price index number by weighted average of price relatives using geometric mean

Commodity	Price		Weight
	Base Year	Current Year	
A	15	17.50	40
B	30	40.00	20
C	10	15.50	15

(7)

OR

Q 4 X. Explain skewness with the help of sketches (3)

Y. Find the four yearly moving averages for the following data

Year	2001	2002	2003	2004	2005	2006	2007
Production	13	15	19	21	27	35	47

(6)

Z. Calculate Laspeyre's quantity index number and Paasche's price index number from the following data

Commodity	Base Year		Current Year	
	Price	Quantity	Price	Quantity
P	4	5	6	3
Q	8	8	10	2
R	8	5	5	4
S	6	3	3	5

(7)

Q 5 A. Explain Kurtosis with diagrams

(3)

B. Splice the following Index Number Series

Year	1982	1983	1984	1985	1986	1987	1988
Series A	112	138	150	-	-	-	-
Series B	-	-	100	103	110	107	115

(6)

C. Fit a straight line trend by the method of least squares and estimate the sales in 2018.

Year	2011	2012	2013	2014	2015
Sales	70	74	80	86	90

(₹ in lakhs)

(7)

OR

Q 5 X. Explain "Value Index Number"

(3)

Y. Calculate Bowley's coefficient of skewness for the following data

Class Interval	40 - 50	50 - 60	60 - 70	70 - 80	80 - 90
Frequency	8	12	20	25	15

(6)

Z. Construct a cost of living index number with the help of the data given below:

Commodity	Weight	Base Year Price	Current Year Price
A	25	2.50	1.75
B	50	1.30	2.10
C	15	5.00	3.75
D	10	0.75	1.50

(7)

BL (4)