Goa Vidyaprasarak Mandal's
GOPAL GOVIND POY RAITURCAR COLLEGE OF COMMERCE AND ECONOMICS
PONDA - GOA
B.Com. CBCS (SEMESTER – III) EXAMINATION NOVEMBER 2023
BUSINESS STATISTICS - I

Duration: 2 hours **Marks: 80**

INSTRUCTIONS: i) Attempt all questions.
ii) Figures to the right indicate full marks.
iii) Graph papers will be supplied on request.
iv) Use of non- programmable calculator is allowed.

Q 1. Answer the following:

A. Explain the terms Population and Sample with an example. (3)

B. Draw a histogram for the following data

Class interval	20 – 30	30 – 40	40 – 50	50 – 70	70 – 90	90 – 100
Frequency	10	15	15	30	20	2

(6)

C. The following frequency distribution shows the number of points scored per game by 60 basketball players.

Points scored	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
Frequency	8	25	14	9	4

Find the median for this data. (7)

OR

Q 1. Answer the following:

X. Explain how Statistics helps in Business Management. (3)

Y. Prepare a 'less than' and 'more than' cumulative frequency table for the frequency distribution of 100 workers

Age (in years)	20 – 25	25 – 30	30 – 35	35 – 40	40 – 45	45 – 50	50 – 55	55 – 60
No. of workers	3	9	15	25	23	12	10	3

How many workers are less than or equal to 40 years?
How many workers are more than or equal to 50 years? (6)

Z. Find the missing frequency from the following data if arithmetic mean is 37

Class interval	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80
Frequency	4	4	9	?	12	6	3	2

(7)

Q 2. Answer the following:

A. Distinguish between Graphs and Diagrams (3 points). (3)

B. The scores of two batsmen in an over are listed below. Find which batsman is consistent

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Batsman A	4	6	6	1	0	6
Batsman B	3	4	2	3	4	2

(6)

C. For the data given below calculate the real income

Year	1990	1991	1992	1993	1994	1995
Price Index Number	160	180	190	200	220	230
Monthly income	2000	2400	2600	2800	3500	3700

(7)

OR

Q 2. Answer the following:

X. Describe 'Indirect Personal interview' as a method of collecting data. (3)

Y. Calculate mean deviation from mean and coefficient of mean deviation for the following data

Class Interval	2 – 4	4 – 6	6 – 8	8 – 10
Frequency	6	8	4	2

(6)

Z. Splice the following Index Number Series

Year	2007	2008	2009	2010	2011	2012	2013	2014
Series X	125	136	143	165	--	--	--	--
Series Y	--	--	--	173	187	198	189	199

(7)

Q 3. Answer the following:

A. The number of factories for 4 years is given below. Draw a bar diagram.

Year	1994	1995	1996	1997
Number of factories	105	95	98	100

(3)

B. Calculate trend values by the method of least squares from the data given below and estimate the sales for 2018.

Year	2011	2012	2013	2014	2015
Sales(in ₹ lakhs)	70	74	80	86	90

(6)

C. Find Karl Pearson's coefficient of skewness based on mean and mode for the following data:

Class Interval	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
Frequency	5	12	15	18	10

(7)

OR

Q 3. Answer the following:

X. Draw a sub divided bar diagram from the following data

Stream	Number of students		
	2009	2010	2011
Arts	50	70	75
Science	200	250	300
Commerce	100	120	130

(3)

Y. Traffic offences committed in a city during 1995 to 2000 are given below. Fit a trend line.

Year	1995	1996	1997	1998	1999	2000
Offences(in 100)	250	265	280	270	247	260

(6)

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

Value	5 – 10	10 – 15	15 – 20	20 – 25	25 – 30	30 – 35	35 – 40
Frequency	6	8	17	21	15	11	2

(7)

Q 4. Answer the following:

A. Explain in brief, the four phases of a business cycle. (3)

B. Calculate D_8 and P_{90} for the following data

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
No. of students	10	20	30	50	40	30

(6)

C. Calculate four-yearly moving averages of number of students studying in a higher secondary school in a particular city from the following data.

Year	2001	2002	2003	2004	2005	2006	2007	2008
Sales	124	120	135	140	145	158	162	170

(7)

OR

Q 4. Answer the following:

X. Explain briefly i) Seasonal variation ii) Irregular variation (3)

Y. The mean wage of 200 workers working in three shifts in a factory is ₹ 520. The average wage of 90 workers working in the first shift is ₹ 500. The average wage of 60 workers working in the second shift is ₹ 450 . What is the average wage of workers working in the third shift? (6)

Z. The following table shows the number of road accidents for the years 1973 to 1979

Year	1973	1974	1975	1976	1977	1978	1979
Road accidents	201	238	392	507	485	549	742

Obtain the semi – average trend line. (7)

Q 5. Answer the following:

A. The following are the marks of 15 students in a monthly test of 20 marks. Construct a frequency distribution of the data. Also calculate the percentage frequency.

17, 14, 15, 16, 16, 17, 14, 15, 16, 16, 17, 14, 16, 15, 17. (3)

B. Calculate standard deviation and variance for the following frequency distribution

Class Interval	0 – 20	20 – 40	40 – 60	60 – 80
Frequency	1	3	4	2

(6)

C. 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
A	2	7	4	8
B	5	4	6	10
C	4	10	5	14
D	2	13	2	19

(7)

OR

Q 5. Answer the following:

X. The following table shows the distribution of marks scored by 250 students of a certain college

Marks scored	Number of students
Less than 10	20
Less than 20	62
Less than 30	118
Less than 40	204
Less than 50	250

Construct a frequency table. (3)

Y. 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 Range and Coefficient of Range. (6)

Z. Calculate the cost of living index number from the following data

Item	Price		Weight
	Base Year	Current Year	
Food	30	47	4
Fuel	8	12	1
Clothes	14	18	3
House rent	22	15	2
Miscellaneous	25	30	1

(7)

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