

Goa Vidyaprasarak Mandal's
GOPAL GOVIND POY RAITURCAR COLLEGE OF COMMERCE AND ECONOMICS
PONDA - GOA
B.COM. CBCS (SEMESTER - III) SUPPLEMENTARY EXAMINATION
MAY 2019
BUSINESS STATISTICS

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. Discuss the usefulness of Statistics to the state and the industrialist. (3)

B. Construct a frequency polygon for the following data

Class Interval	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60
Frequency	6	8	20	16	8	2

C. The following table gives the age (in years) of employees of a firm. The modal age is 32 years. Find the missing frequency.

Age (in years)	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45
Number of employees	5	?	18	9	6

OR

Q 1. Answer the following:

X. Explain the terms 'Parameter' and 'Statistic'. (3)

Y. Draw a pie diagram to represent the population of five states of India in 1971

State	Andhra Pradesh	Bihar	Gujarat	Haryana	West Bengal
Population (in millions)	43	56	27	10	44

Z. The mean of 200 items is found to be 50. If at the time of calculation, two items are wrongly taken as 92 and 8 instead of 192 and 88, find the correct mean. (7)

Q 2. Answer the following:

A. Why are personal interviews usually preferred to mailed questionnaire method? (3)

B. 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)

C. The following table gives the annual income of a worker and the price index during 1959 – 1965. Calculate real income of the worker.

Year	1959	1960	1961	1962	1963	1964	1965
Income	360	400	480	520	550	590	610
Index	100	104	115	160	210	260	300

OR

(7)

Q 2. Answer the following:

X. What are the essential requisites of a good questionnaire (any three)

(3)

Y. Calculate the mean deviation from mean for the following data

Class interval	2 – 4	4 – 6	6 – 8	8 – 10
Frequency	3	4	2	1

(6)

Z. 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

(7)

Q 3. Answer the following:

A. The following table gives the birth rate per thousand of different countries. Represent the data by a bar diagram

Country	India	Germany	U.K.	China	New Zealand	Sweden
Birth rate	33	16	20	40	30	15

(3)

B. Fit a straight line trend by the method of least squares and estimate the sales in 2019.

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

(6)

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

Age (inyears)	20 – 28	28 – 36	36 – 44	44 – 52	52 – 60
No. of persons	5	7	10	5	2

(7)

OR

Q 3. Answer the following:

X. Draw a multiple bar diagram to represent the following data

Year	Imports(in billion ₹)	Exports(in billion ₹)
1971 – 72	18	16
1972 – 73	19	20
1973 – 74	29	25
1974 – 75	29	23

(3)

Y. Fit a straight line trend by the method of least squares.

Year	1998	1999	2000	2001	2002	2003	2004
Production (in thousand tons)	48	50	58	52	45	41	49

(6)

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

Class Interval	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50
f	8	16	14	12	10

(7)

Q 4. Answer the following:

A. Write a short note on irregular variations

(3)

B. Calculate D_3 and P_{25} for the following data

Class interval	40 - 50	50 - 60	60 - 70	70 - 80
Frequency	10	12	8	14

(6)

C. Draw a trend line by the method of semi-averages for the following data

Year	1970	1971	1972	1973	1974	1975	1976
Export (₹ in lakh)	34	38	36	42	45	44	44

(7)

OR

Q 4. Answer the following:

X. Explain in brief, the four phases of a business cycle.

(3)

Y. The arithmetic of weekly income of 100 workers is ₹432. If 30 of these workers have an average income of ₹ 380, what will be the average income of the remaining 70 workers?

(6)

Z. Calculate four yearly moving averages for the following data

Years	1980	1981	1982	1983	1984	1985	1986	1987	1988
Values	240	246	244	242	246	251	241	249	253

(7)

Q 5. Answer the following:

A. 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)

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

(6)

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

Commodity	Base Year		Current Year	
	Price	Quantity	Price	Quantity
A	2	8	4	7
B	5	10	6	4
C	4	14	5	10
D	2	19	2	13

(7)

OR

Q 5. Answer the following:

X. The following table gives the income distribution of workers of a certain factory

Monthly income (in ₹)	Number of workers
2500 – 2600	10
2600 – 2700	18
2700 – 2800	27
2800 – 2900	20
2900 – 3000	15
3000 – 3100	8
3100 – 3200	2

Construct a more than cumulative frequency distribution.

(3)

Y. The arithmetic mean of runs scored by three batsmen – Vijay, Shubham and Kumar in 10 innings are 50, 48 and 12 respectively, The standard deviation of their runs are 15, 12 and 2 respectively. Who is most consistent of the three?

(6)

Z. Construct an index number by family budget method

Commodity	Weight	Base Year Price	Current Year Price
A	5	16	20
B	6	40	60
C	8	15	14
D	7	13	15
E	5	21	23

(7)

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