

Goa Vidyaprasarak Mandal's
GOPAL GOVIND POY RAITURCAR COLLEGE OF COMMERCE AND ECONOMICS
PONDA - GOA
B.COM. CHOICE BASED CREDIT SYSTEM (SEMESTER – III) EXAMINATION
OCTOBER 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. Define Attribute and Variate. Give two examples of each. (3)

B. 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
Number 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)

C. Find the missing frequency for the following data if median is 28

Class interval	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
Frequency	5	15	---	18	11

(7)

OR

Q 1. Answer the following:

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

Y. Construct a histogram from the following distribution of total marks of 30 students in a class

Marks (Class mark)	100	120	140	160	180	200
Number of students	5	6	4	7	5	3

(6)

Z. Calculate, by step deviation method, the arithmetic mean for the following data

Class interval	100 – 120	120 – 140	140 – 160	160 – 180	180 – 200	200 – 220	220 – 240
Frequency	10	8	4	4	3	1	2

(7)

Q 2. Answer the following:

A. With the help of suitable examples, distinguish between inclusive and exclusive class interval. (3)

B. The following are the scores made by two batsmen in an over

Balls	1	2	3	4	5	6
Batsman A	1	6	4	6	3	1
Batsman B	3	4	4	3	4	3

Which of the two batsmen is a better scorer on an average? Which of them is more consistent? (6)

C. Splice the following Index Number Series

Year	2004	2005	2006	2007	2008	2009	2010	2011
Series X	125	136	143	165	-	-	-	-
Series Y	-	-	-	176	187	198	189	199

(7)

OR

Q 2. Answer the following:

X. State the various methods of collecting primary data. Explain any one of the methods. (3)

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

x	10	11	12	13	14	15	16	17
f	2	3	6	5	8	4	3	1

(6)

Z. The following table gives the monthly wage of a worker and the index number. Calculate real wages of the worker.

Year	2009	2010	2011	2012	2013	2014
Index	160	180	190	200	220	230
Income	2000	2400	2600	2800	3500	3700

(7)

Q 3. Answer the following:

A. Represent the following data by a suitable diagram

Year	1987	1988	1989	1990	1991
CA enrolments	7300	9400	12100	14600	16700

(3)

B. Fit a straight line trend by the method of least squares and estimate the sales in 2008.

Year	2011	2012	2013	2014	2015	2016	2017
Sales(₹ in lakhs)	265	270	280	290	300	320	310

(6)

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

Class interval	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50
Frequency	5	18	23	40	8

(7)

OR

Answer the following:

Draw a multiple bar diagram to represent the following data

Year	Birth rate	
	Urban	Rural
2002	25	30
2003	22	28
2004	22	26
2005	21	25

(3)

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

Year	2011	2012	2013	2014	2015	2016
Sales(in 1000 units)	100	120	118	124	136	140

(6)

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

Age (in years)	20 – 28	28 – 36	36 – 44	44 – 52	52 – 60
No. of persons	18	25	10	5	2

(7)

Q 4. Answer the following:

A. Explain briefly i) Seasonal variation ii) Irregular variation

(3)

B. Calculate D_7 and P_{43} for the following data

Class interval	20 – 25	25 – 30	30 – 35	35 – 40	40 – 45	45 – 50	50 – 55
Frequency	2	5	8	12	10	7	6

(6)

C. Draw a trend line by the method of semi-averages for the following data and estimate the exports in 2018

Year	2011	2012	2013	2014	2015	2016	2017
Export(₹ in lakhs)	34	38	36	42	45	44	49

(7)

OR

Q 4. Answer the following:

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

(3)

Y. A survey of 2000 students from various schools and colleges was conducted. It was found that out of 1200 college students, on an average a college student spends 40 hours per month watching T.V. If the average time spent by the entire group of college and school students watching T.V. is 44 hours per month, find the average time spent per month by a school student watching T.V. (6)

Z. Calculate three yearly moving averages and determine the trend values for the following data

Year	2010	2011	2012	2013	2014	2015	2016	2017
Production	110	115	116	118	119	120	122	124

(7)

Q 5. Answer the following:

A. The following table shows the frequencies of people wearing glasses

Age	Number of persons
Below 20	5
Below 40	12
Below 60	32
Below 80	42
Below 100	50

Construct a frequency table.

(3)

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

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

(6)

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

Commodity	Base Year		Current Year	
	Quantity	Price	Quantity	Price
A	12	10	15	12
B	15	7	20	5
C	24	5	20	9
D	5	16	5	14

(7)

Q 5. Answer the following:

X. Calculate relative frequency and percentage frequency for the following data

Marks	20 – 40	40 – 60	60 – 80	80 – 100
No. of students	6	12	4	3

(3)

Y. The following table gives the heights of boys and girls studying in a college. Find the standard deviation of the heights of the boys and girls taken together

	Boys	Girls
Number	400	100
Average height	68 inches	65 inches
Standard deviation	3	2

(6)

Z. Find x if the cost of living index number for the data given below is 150

Commodity	A	B	C	D	E
Weight	3	4	x	6	4
Index number	100	150	140	200	120

(7)

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