

Goa Vidyaprasarak Mandal's
GOPAL GOVIND POY RAITURCAR COLLEGE OF COMMERCE & ECONOMICS
PONDA-GOA

B.COM. (SEMESTER-III) EXAMINATION, OCTOBER 2014
STATISTICAL TECHNIQUES

Duration : 2 Hours

Marks : 80

Instruction :- All Questions are compulsory.

- Q 1 A. Explain the functions of statistics. (3)
- B. Form a frequency distribution table taking the variable as the number of letters in a word in the stanza given below. (6)
- Heights by great men reached and kept
Were not attained by sudden flight.
But they while their companion slept,
Were toiling upwards in the night.
- C. The average height of 45 children was found to be 125 cms. If 5 children having heights 127, 125, 130, 135, 129 cms are added to this group, what will be the average of the group of 50 children? (7)

OR

- Q 1 X. Write short note on limitations of statistics. (3)
- Y. The arithmetic mean of weekly incomes of 100 workers is ₹329. If 30 of these employees have an average income of ₹ 280, what will be the average income of the remaining 70 workers? (6)
- Z. Find the missing frequency given that the median income is ₹ 1520/- (7)
- | | | | | | |
|--------------------|-------|-------|-------|-------|-------|
| Income: ('00 `) | 10-12 | 12-14 | 14-16 | 16-18 | 18-20 |
| No. of employees : | 15 | 20 | 25 | -- | 20 |

- Q 2 A. What are the various methods of collecting primary data. (3)
- B. Draw histogram from the following data hence locate the mode. (6)
- | | | | | | | |
|------------------|------|-------|-------|-------|-------|-------|
| Class Interval : | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
| Frequency : | 6 | 15 | 25 | 22 | 10 | 2 |
- C. Find the missing frequency for the following data given that the mode of the distribution is 44 and the median is 45.8. (7)
- | | | | | | | | | |
|-------------------|------|-------|-------|-------|-------|-------|-------|-------|
| Age : | 0-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 |
| No of Employees : | 10 | 10 | -- | 50 | 29 | 15 | -- | 10 |

OR

Q. 2. X. Distinguish between histogram and bar diagrams. (3)

Y. Calculate the value of D_3 and P_{84} from the following data: (6)

Advertising expenditure ('000)	1-2	2-3	3-4	4-5	5-6	6-7	7-8
No. of companies	8	15	22	25	15	10	5

Z. Draw Pie diagram to represent the following data. (7)

Crop	Production in 1000tonnes
Rice	1369
Wheat	503
Jowar	1932
Bajra	239
Tur	251
Gram	1050
Sugarcane	1766

Q.3. A. Write merits and demerits of arithmetic mean. (3)

B. Calculate coefficient of mean deviation from $a=35$ using the following: (6)

Classes	10-19	20-29	30-39	40-49	50-59	60-69	70-79	Total
Frequency:	8	12	20	40	10	8	2	100

C. Calculate variance and standard deviation from the following data: (7)

Wages in Rupees:	100-200	200-300	300-400	400-500	500-600	600-700
No. of workers :	7	10	18	13	8	5

OR

Q.3. X. Write short note on Measures of variation. (3)

Y. The following are some particulars of the distribution of weights of boys and girls in a class: (6)

	Boys	Girls
Number of workers	100	50
Mean Weight	60kg	45kg
Variance	9	4

Find the standard deviation of the combined data. Which of the two distribution is more variable?

Z. Calculate Bowley's coefficient of skewness from the following data. (7)

Age in year	20-28	28-36	36-44	44-52	52-60
No. of workers	3	5	10	5	2

Q.4.A. What is skewness? What are the different measure of skewness? (3)

B. Calculate four yearly moving average from the following data: (6)

Year	:	2001	2002	2003	2004	2005	2006	2007	2008	2009
Production :		10	11	12	10	11	12	9	8	10

(000' quintals)

C. Construct cost of living index numbers from the following data. (7)

Item	Weights	Base Year Price	Current Year Price
A	25	1.2	2.10
B	50	2.5	1.75
C	15	5.0	3.75
D	10	0.75	1.50

OR

Q.4 X. Write short note on seasonal variations in time series. (3)

Y. Find three yearly moving average trend from the following data: (6)

Years	:	2005	2006	2007	2008	2009	2010	2011	2012	2013
Trend value	:	98	105	103	100	107	106	103	102	112

Z. Fit straight line trend to the following data giving cotton sales. Hence estimate the sales in the year 2014. (7)

Year	:	2002	2003	2004	2005	2006	2007	2008
Sales	:	5	11	17	21	24	25	31

(in lakhs ₹)

Q.5 A. What is an index number? State any two uses of index numbers. (3)

B. Use least square method to obtain an equation of trend line for the following data and hence estimate the Production in 2014. (7)

Year	:	2005	2006	2007	2008	2009	2010	2011	2012
Production:		12	16	17	20	26	31	30	33

(Lakhs ₹)

C. Calculate Laspeyre's and Passche's Price index number from the following data. (6)

Commodity	Price		Quantity	
	Base Year	Current year	Base year	Current year
A	11	13	100	95
B	7	10	30	30
C	16	18	80	75
D	15	20	100	90

OR

Q.5 X. Explain skewness within frequency curves with suitable sketches. (3)

Y. Obtain an equation of trend line by method of least squares for the following data and hence estimate the sales in 2015.

Year	:	2005	2006	2007	2008	2009	2010	2011	2012
Sales	:	10	15	16	20	25	31	33	38
		('000')							

Z. Construct living index number by family budget method. (6)

Commodities	Weights	Base Price	Current Price
U	5	16	20
V	2	40	60
W	6	15	14
X	8	13	15
Y	4	21	23

XXXXXXXXXXXXXXXXXXXX

Commodity	Base Year	Current Year	Base Year	Current Year
A	100	110	100	110
B	100	105	100	105
C	100	115	100	115
D	100	120	100	120