MES COLLEGE OF ARTS & COMMERCE, ZUARINAGAR - GOA
B.Com. (CBCS) III Semester End Special Examination, March 2022
GE 3 –BUSINESS STATISTICS–I (UCAG101)

Instructions: *(i) Attempt All Questions.*
(ii) Figures to the right indicate full marks.
(iii) Graph papers will be supplied on request.
(iv) Use of simple (non Scientific) calculator is allowed.

Duration: 02 Hours   **Max. Marks: 80**

Q. I) Answer the following: **(16)**

a) Write any 2 points of distinction between Primary data and Secondary data.   **(3)**

b) Construct Frequency Curve for the following data: **(6)**

Class Interval	10-20	20-30	30-40	40-50
Frequency	20	25	90	100

c) Calculate Mean and Median for the following data: **(7)**

x	20	25	30	35
Frequency (f)	8	9	6	8

OR

Q.I) Answer the following: **(16)**

x) Write any 3 limitations of Statistics.   **(3)**

y) Draw less than Ogive for the following data: **(6)**

Class Interval	14-21	21-28	28-35	35-42
Frequency	20	30	60	10

z) Calculate Mean Deviation from Median for the following data: **(7)**

Class Interval	16-32	32-48	48-64	64-80
Frequency	12	15	20	10

Q.II) Answer the following: **(16)**

a) The following data represents the marks obtained by 10 students in the subject of Statistics: **(3)**

12, 41, 63, 16, 43, 64, 25, 58, 46, 32

Taking class intervals as $0 - 20, 20 - 40, 40 - 60, 60 - 80$ prepare a frequency distribution table.

b) Calculate D_9 and Mode for the following data: **(6)**

Class Interval	20-40	40-60	60-80	80-100
Frequency	25	34	15	26

c) For the following data, calculate Weighted Average of Price Relatives taking 2018 as base year: **(7)**

Commodity	Price in		Weights
	2018	2019	
A	20	32	5
B	35	56	12
C	42	78	30
D	55	60	20

OR

Q.II) Answer the following: **(16)**

x) Write any 1 point of distinction between population and sample. **(3)**

y) i) If $Q_1 = 4$, $Q_2 = 10.5$ and $Q_3 = 15$, then Calculate Bowley's Coefficient of Skewness. **(6)**

ii) Calculate range and Coefficient of range for the following data:
0, 25, 33, 34, 18, 100

z) i) Calculate Real income for the following data: **(7)**

Year	2012	2013	2014
Income (In Rs.)	12000	15000	19000
Index number with base 2012	100	120	125

ii) Calculate chain base index numbers for the following data:

Year	2008	2009	2010
Index numbers with base 2008	100	125	133

Q.III) Answer the following: **(16)**

a) Draw a Simple Bar Diagram representing the following data: **(3)**

Year	2018	2019	2020
Sales of Toy cars	20	50	30

b) Fit a trend line by the method of Least Squares for the following data: **(6)**

Year	2016	2017	2018	2019	2020
Production	26	34	49	52	58

c) If $n_1 = 60$ and $n_2 = 65$, $\bar{x_1} = 60$ and $\bar{x_2} = 50$, then find the combined mean of all the 125 items. **(7)**

OR

Q.III) Answer the following: **(16)**

x) The following data represents details of favorite fruits of 100 students in a particular class. **(3)**

Favorite fruit	No. of children
Mango	30
Apple	50
Orange	20
Total	100

Calculate the value of the angle corresponding to each of these favorite fruits in the Pie-Chart.

y) Fit a Second Degree Trend Curve for the following data: **(6)**

Year	2008	2009	2010	2011	2012
Export	22	25	34	56	75

z) (i) If mean = 100, mode=106 and standard deviation=6, then calculate the Karl Pearson's **(7)**
   Coefficient of Skewness.

   (ii) If mean = 12 and mode = 20, then calculate median.

Q. IV) Answer the following: **(16)**

a) 1) Beauty of a person is an example of variable or attribute? Justify. **(1)**

   2) Mention any 2 limitations of Index Numbers. **(1)**

   3) State the Additive model of time series. **(1)**

b) i) Calculate Harmonic Mean for the following data: **(6)**

x	5	10
Frequency (f)	6	21

   ii) Calculate the standard deviation from the following data:

x	3	6	9
Frequency (f)	6	10	4

c) Calculate 3 yearly moving averages for the following data and represent the trend values on
   the graph: **(7)**

Year	2014	2015	2016	2017	2018	2019
Import	30	35	39	38	44	41

OR

Q. IV) Answer the following: **(16)**

x) 1) Income of a person is an example of discrete or continuous variable? Justify. **(1)**

   2) Define Chain Base Index Numbers. **(1)**

   3) Write any two examples of Irregular component of Time series. **(1)**

y) Calculate Q_3, Q_1 and interquartile range for the following data : **(6)**

Class Interval	0 – 12	12 – 24	24 – 36	36 – 48
Frequency	20	34	20	26

z) Fit a trend line by the method of Semi Averages for the following data: **(7)**

Year	2003	2004	2005	2006	2007	2008
Yield	13	10	16	10	19	13

Q.5) Answer the following: (16)

a) Write any 3 requisites of a good questionnaire. (3)

b) i) If standard deviation $= 2.5$ and mean $= 8$, then calculate coefficient of variation. (6)

ii) Calculate P_{22} for the following data:

Class Interval	0-20	20-40	40-60	60-80
Frequency	15	25	27	33

c) Calculate Fixed base index numbers for the following data taking 2016 as the base year: (7)

Year	2016	2017	2018	2019	2020
Price	15	21	36	55	58

OR

Q.5) Answer the following: (16)

x) i) Write any three objectives of Classification. (3)
ii) Define Inclusive Class Interval.

y) The mean age of 20 students from a dance class was calculated as 15. It was later found (6)
that one of the student's actual age was 17 and was wrongly taken as 15. What will be the
corrected mean age of the students of dance class.

z) Calculate Fisher's Price index number for the given data taking 2008 as the base year: (7)

Commodity	2008		2009	
	Price	Quantity	Price	Quantity
A	13	6	14	6
B	18	8	20	9
C	30	9	34	10

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