

**CARMEL COLLEGE OF ARTS, SCIENCE AND COMMERCE FOR WOMEN,
NUVEM-GOA**

SEMESTER END EXAMINATION, NOVEMBER, 2022

Semester: III OF BCOM

Course Title : BUSINESS STATISTICS I (GE03)

Course Code: UCAG 101

Total marks: 80

Date: 26/11/2022 Duration: 2 hours

Total No of pages: 4

Instructions: 1. All questions are compulsory.

2. Figures to the right indicate maximum marks to the questions.

3. Use of non-programmable calculators is allowed.

Q.1. Answer any **FOUR** of the following: (4 × 4 = 16 marks)

- a. Define the term "Statistics" and write the importance of Statistics in Commerce.
- b. Distinguish between 'Primary data' and 'Secondary data'.
- c. Calculate the mean bonus paid per member from the following data:

Bonus (in Rs.)	50	60	70	80	90	100	110
No. of persons	1	3	5	7	6	2	1

- d. The mean weight of a group of 25 boys was found to be 78.4 kgs. It was later discovered that one weight as misread as 69 kgs instead of the correct value which is 96 kgs. Calculate the correct mean.

- e. For the following raw data prepare a frequency distribution with inclusive class interval 0-9, 10-19...etc.

12	36	40	16	10	10	19	20	28	30
19	27	15	21	33	45	7	19	20	26
26	37	6	5	20	30	37	17	11	20

- f. Draw a Bar diagram to represent the following data:

Year	1970	1971	1972	1973	1974	1975
No. of Salesmen	22	27	34	31	22	19

Q.2. Answer any **FOUR** of the following: (4 × 4 = 16 marks)

- a. What are index numbers? Write any two uses of index numbers.
- b. Calculate the mean deviation about median from the following distribution

Value (x)	10	11	12	13
Frequency	3	12	18	12

- c. The test score of a sample of 100 students have symmetric mounded distribution with a mean score of 570 and a standard deviation of 70. Approximately what percent of scores are between 430 and 710. State the result used.

- d. Find the Index Number for 2005, using simple Average of Relatives method.

Items		Wheat	Rice	Dal	Milk	Clothing
Units		Quintal	Quintal	Quintal	Litre	Meter
Price in Rs	1995	300	400	700	12	25
	2005	600	560	770	18	50

- e. From the following data on the prices of sugar per 10 kg. Construct chain base Index Numbers

Year	2011	2012	2013	2014	2015	2016	2017
Price of Sugar	251	266	228	211	211	208	306

- f. Fit a trend line from the following data by using Semi-averages method

Year	1973	1974	1975	1976	1978	1979
Sales	130	153	140	165	200	210

Q.3. Answer either A and B or X and Y:

(6×2 = 12 marks)

- A. The wages in Rupees per day of employees of a company are tabulated below. Calculate the median wage.

Wages in Rs	0-50	50-100	100-150	150-200	200-250	250-300
No. of employees	10	70	80	100	150	90

- B. Draw a histogram from the following data and hence determine the value of mode.

Daily wages (Rs.)	0-60	60-120	120-180	180-240	240-300	300-360
No. of employees	4	8	15	20	12	6

OR

- X. Find the mode for the following distribution.

Size	0-5	5-10	10-15	15-20	20-25	25-30
Frequency	1	2	10	15	9	3

- Y. For the following distribution of wages, draw ogive and hence find the value of median.

Monthly wages	12-17	17-22	22-27	27-32	32-37	37-42	42-47
Frequency	2	22	10	14	6	4	2

Q.4. Answer either A and B or X and Y: (6×2 = 12 marks)

- A. Find Inter-quartile range, Semi-inter quartile range and Coefficient of Quartile deviation, from the following distribution:

Marks	20-30	30-40	40-50	50-60	60-70	70-80
No. of students	45	120	25	90	80	120

- B. The Bowley's coefficient of skewness for a certain distribution is -0.8 . If the sum of upper and lower quartile is 100.7 and median is 55.35, find the values of lower and upper quartiles.

OR

- X. Compute the Standard deviation for the following distribution:

Marks	0-10	10-20	20-30	30-40	40-50	50-60
No. of Students	5	7	14	12	9	6

- Y. Draw a multiple bar diagram to represent the following data relating to index of industrial production.

Year	1956	1957	1958	1959
U.S.A.	109	110	102	116
Germany	139	147	152	162

Q.5. Answer either A and B or X and Y: (6×2 = 12 marks)

- A. Calculate Bowley's coefficient of skewness for the following data:

Income Group (in '00 Rs.)	Below14	14-18	18-22	22-26	26-30	30-34
No. of workers	20	39	58	60	48	25

- B. Calculate the weighted average of price relatives for 1990 from the following data:

Item	Price in 1971	Price in 1990	Weights
A	8	9.5	5
B	12	12.5	1
C	6.5	9	3
D	4	4.5	6
E	6	7	4

OR

- X. Given below are the figures of production of sugar factory in '000 tonnes

Year	1981	1982	1983	1984	1985	1986	1987
Production	77	88	94	85	91	98	90

Fit a Straight line trend by method of least squares.

- Y. Construct the weighted cost of living index numbers from the following:

Group	Food	Fuel and Lighting	Clothing	Rent	miscellaneous
Weights	47	7	8	13	14
Indices	247	293	289	100	236

Q.6.

Answer either A and B or X and Y:

(6×2 = 12 marks)

- A. Compute Fisher's Ideal index numbers from the following data taking 1955 as the base year.

Commodity	1955		1975	
	Quantity	Price	Quantity	Price
A	2	8	3	9
B	4	5	2	8
C	5	9	7	5

- B. Determine trend values by method of moving average if the observations given below are known to have a business cycle of 4 years.

Year	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Values	61	55	48	53	67	62	60	67	73	78

OR

- X. Calculate Paasche's aggregative price indices for 2015 from the following data:

Commodities	Quantities		Price per unit	
	2014	2015	2014	2015
A	3	5	200	250
B	4	6	250	300
C	2	3	300	250
D	1	2	100	75

- Y. Fit a linear trend by method of least squares for the following data and hence estimate the number of production units for 2002.

Year	1995	1996	1997	1998	1999	2000	2001
Production	125	128	133	135	140	141	143