

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

B.COM. CBCS Semester III Examination, January, 2021

Semester: III OF B.COM

Course name & Code: Business Statistics (GE)

Total marks: 40

Date: 09-01-2021

Duration: 2 Hrs

Total No. of pages: 3

Instructions:

1. All questions are compulsory, however internal choice is available.
2. Figures to the right indicate maximum marks allotted to the question.
3. Student shall write down the answers and should **sign each and every page with date** and then upload the scanned copy/photograph of the answer sheet in PDF format. A student must upload their answer scripts by 1.00 pm.
4. PDF should be titled as : **Name of the student_Seat Number_paper name.**

Q.1. Attempt **any five** of the following:

[10]

- a) Comment briefly on the following statement: “Statistics is the science of human welfare.”
(write your answer in not more than 40 words)
- b) If the class mid-points in a frequency distribution of age of a group of persons are 25, 32, 39, 46, 53 and 60, find:
 - (i) the size of the class interval.
 - (ii) the class boundaries, and
 - (iii) The class limits, assuming that the age quoted is the age completed last birthday.
- c) Represent the data related to expenditure of the two families by a suitable diagram.

Items of Expenditure	Family A (Income of Rs.400)	Family B (Income of Rs.300)
Food	150	120
Clothing	100	80
Education	120	80
others	30	20

- d) Convert the following distribution into ‘more than’ frequency distribution.

Weekly wages less than (’00 Rs.)	20	40	60	80	100
No. of Workers	41	92	156	194	201

- e) Goals scored by a hockey team in successive matches are 5, 4, 7, 2, 0, 4, 5, 3 and 5. What is the number of goals, the team must score in the 10th match in order that the average comes to 4 goals per match.
- f) Define standard deviation. Show that the standard deviation of the natural numbers 1, 2, 3, 4 and 5 is $\sqrt{2}$.

- g) The following are the price index numbers with base year 2000. Shift the base from 2000 to 2002:

Year	2000	2001	2002	2003	2004	2005
Index Numbers	100	140	260	340	400	450

- h) Determine trend values by method of moving average if the observations, given below are known to have a business cycle of 3 years.

Year	1990	1991	1992	1993	1994	1995	1996	1997
Values	45	65	55	48	56	67	47	60

Q.2. Attempt **any six** of the following:

[30]

- a) Distinguish between Primary and Secondary data. Give a brief account of the chief methods of collecting Primary Data and bring out their merits and defects. (write your answer in not more than 100 words)
- b) 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	3	22	10	14	3	6	6

- c) For a number of 51 observations, the arithmetic mean and standard deviation are 58.5 and 11 respectively. It was found after the calculation were made that one of the observations recorded as 15 was incorrect. Find the mean and standard deviation of the 50 observations if this incorrect observation is omitted.
- d) Calculate the appropriate measure of skewness from the following data:

Wages in Rs. per week:	Less than 35	35-37	38-40	41-43	Over43
No. of wage earners	14	62	99	18	7

- e) Fit a Straight-line trend by method of least squares on steel production (in Million tonnes). Predict the values for 1992.

Year	1985	1986	1987	1988	1989	1990	1991
Production	80	84	90	93	98	100	104

- f) Calculate Laspeyres's and Paasche's aggregative price indices from the following data:

Commodities	Base year		Current year	
	Price	Quantity	Price	Quantity
A	10	50	25	50
B	2	15	8	10
C	2	20	3	25
D	1	10	4	8
E	5	30	6	25

- g) In 1920, a Statistical Bureau started an index of production based on 1914 with the following results:

Year	1914 (Base)	1920	1929
Index	100	120	200

In 1936, the Bureau reconstructed the index on a plan with base 1929.

Year	1929(Base)	1935
Index	100	150

In 1936, the Bureau again reconstructed the index on yet another plan with the base year 1935.

Year	1935(Base)	1936	1943
Index	100	120	150

Obtain a continuous series with the base 1935, by splicing the three series.

- h) Find the missing information from the following:

	Group I	Group II	Group III	Combined
Number	50	?	90	200
Standard Deviation	6	7	?	7.746
Mean	113	?	115	116
