H Roll No. .....

BCH–306

B. COM. (H) (THIRD SEMESTER) END SEMESTER EXAMINATION, Jan., 2023

BUSINESS STATISTICS

Time : Three Hours

Maximum Marks : 100

Note : (i) All questions are compulsory.

(ii) Answer any *two* sub-questions among (a), (b) and (c) in each main question.

(iii) Total marks in each main question are **twenty**.

(iv) Each sub-question carries 10 marks.

1. (a) What are the nature and scope of business statistics ? (CO1)

(b) What is sampling ? Discuss the various methods of sampling. (CO1)

(c) What are the characteristics of good average ? (CO1)

P. T. O.

2. (a) Calculate the mean for the following frequency distribution : (CO2)

(i) By the direct formula.

(ii) By the step deviation method.

Marks	Number of Students
0—10	6
10—20	5
20—30	8
30—40	15
40—50	7
50—60	6
60—70	3

(b) Discuss the data collection and data classification. (CO2)

(c) A man travels from Jaipur to Agra by a car and takes 4 hours to cover the whole distance. In the first hour, he travels at speed of 50 km/hr, in the second hour his speed is 64 km/hr, in third hour his speed is 80 km/hr and in the fourth hour, he travels at the speed of 55 km/hr. Find the average speed of the motorist. (**Hint :** Use Harmonic Mean). (CO2)

3. (a) The following table gives indices of industrial production and number of registered unemployed people (in lakh). Calculate the value of correlation coefficient : (CO3)

Year	Index of Production	Number of Unemployed
2007	100	15
2008	102	12
2009	104	13
2010	107	11
2011	105	12
2012	112	12
2013	103	19
2014	99	26

(b) A survey was conducted to determine the age (in years) of 120 automobiles. The result of such a survey is as follows : (CO3)

Age of auto	Number of autos
0—4	15
4—8	12
8—12	13
12—16	11
16—20	12

What is the median age for the autos ?

(c) Show that A. M. > G. M. > H. M. by taking two variables x_1 and x_2. (CO3)

4. (a) Distinguish Karl Pearson's Correlation and Spearman's Correlation. (CO4)

(b) Distinguish skewness and kurtosis. Also, discuss their types. (CO4)

(c) Distinguish Linear and Nonlinear regression models. (CO4)

5. (a) In a class of 30 students marks obtained by students in mathematics out of 50 are tabulated as ahead. Calculate the mode of data given : (CO5)

Marks Obtained	Number of Student
10—20	5
20—30	12
30—40	8
40—50	5

(b) Quotations of index numbers of security prices of a certain joint stock company are given below : (CO5)

Year	Debenture Price	Share Price
1	97.8	73.2
2	99.2	85.8
3	98.8	78.9
4	98.3	75.8
5	98.4	77.2
6	96.7	87.2
7	97.1	83.8

Using the rank correlation method, determine the relationship between debenture prices and share prices.

(c) Write the three broad types of correlations. Show graphs in support of all types. (CO5)

430