

Exam. Code : 121101
 Subject Code : 3917

B.Com. 1st Semester (Batch 2023-26) (CBGS)

BUSINESS STATISTICS

Paper : BCG-106

Time Allowed—3 Hours] [Maximum Marks—100

Note :—Attempt FIVE questions in all, selecting at least ONE question from each section. The fifth question may be attempted from any section. All questions carry equal marks.

SECTION—A

- (a) Statistics is not a Science, it is a scientific method. Discuss the statement.
- (b) Find the missing frequencies in the following distribution, for which it is known that Median = 48.25 and Mode = 44.

| Class Interval | Frequency |
|----------------|-----------|
| 10-20 | 3 |
| 20-30 | 7 |
| 30-40 | ? |
| 40-50 | ? |
| 50-60 | ? |
| 60-70 | 20 |
| 70-80 | 16 |
| 80-90 | 4 |
| Total | 150 |

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358(2123)/IH-12178(Re)

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- Find out the Arithmetic Mean, Mode and Median for the following distribution :

| | | | | | |
|-------------------------------|----|-----|-----|-----|-----|
| Mid Points (weight in lbs) | 95 | 105 | 115 | 125 | 135 |
| No. of Students | 4 | 2 | 18 | 22 | 21 |

| | | | | |
|-------------------------------|-----|-----|-----|-----|
| Mid Points (weight in lbs) | 145 | 155 | 165 | 175 |
| No. of Students | 19 | 10 | 3 | 2 |

SECTION—B

- Calculate Karl Pearson's Correlation Coefficient from the following Table :

| | | | | | | | |
|---|----|---|---|----|----|----|---|
| X | 12 | 9 | 8 | 10 | 11 | 13 | 7 |
| Y | 14 | 8 | 6 | 9 | 11 | 12 | 3 |

- What is meant by Dispersion ? What are the methods of computing measures of dispersion ? Illustrate the practical utility of these methods.

SECTION—C

- The following table gives the data with regard to the prices and consumption of a few selected items for the years 2012 and 2021 :

| Year | Article | | | | | | | |
|------|---------|---|------|---|------|----|------|---|
| | I | | II | | III | | IV | |
| | P | Q | P | Q | P | Q | P | Q |
| 2012 | 12.50 | 9 | 9.63 | 4 | 7.75 | 6 | 5.00 | 5 |
| 2021 | 12.75 | 9 | 7.75 | 6 | 8.80 | 10 | 6.50 | 7 |

358(2123)/IH-12178(Re)

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Calculate the (i) Laspeyre's Index, (ii) Paasche's Index and (iii) Fisher's Index.

Also, prove that the time reversal test is satisfied by Fisher's formula but not necessarily by the Laspeyre's and Paasche's Index Number.

6. What is Index Numbers ? Explain the methods of construction of Index Numbers.

SECTION—D

7. The data below give the index of Industrial production from 2011 to 2020 :

| Year | Index of Production (Lakh Tonnes) |
|------|--------------------------------------|
| 2011 | 109.2 |
| 2012 | 119.8 |
| 2013 | 129.7 |
| 2014 | 140.8 |
| 2015 | 153.8 |
| 2016 | 153.2 |
| 2017 | 152.6 |
| 2018 | 163.0 |
| 2019 | 175.3 |
| 2020 | 184.3 |

Find the trend line and predict the index of production for the year 2022 by semi-average method.

8. (a) Discuss the Theorems of Probability.
- (b) A stocklist has 20 items in a lot. Out of which, 12 are non-defective and 8 defective. A customer selects 3 items from the lot.
- (i) What is the probability that all the three items are non-defective ?
- (ii) What is the probability that out of these three items, two are non-defective and one is defective ?
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