## SECTION—D

7. Take a five-yearly period of moving average and determine short-term oscillations from the following data :

| Year | Production (000) |
|---|---|
| 2004 | 14 |
| 2005 | 17 |
| 2006 | 22 |
| 2007 | 28 |
| 2008 | 26 |
| 2009 | 18 |
| 2010 | 20 |
| 2011 | 24 |
| 2012 | 25 |
| 2013 | 29 |
| 2014 | 30 |
| 2015 | 23 |

8. The sale of company in thousands of rupees for the year 2009 to 2015 are given below :

| Year | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|
| Sales | 32 | 47 | 65 | 92 | 132 | 190 | 275 |

Estimate sales figures for the year 2016 using an equation of the form $Y = ab^X$, where X = Years and Y = Sales.



**Exam. Code : 108501**
**Subject Code : 1985**

**B.Com. 1st Semester (Batch 2021-24)**
**BUSINESS STATISTICS**
**Paper—BCG-106**

Time Allowed—3 Hours] [Maximum Marks—50

**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

1. Write the importance of statistics to the businessman, the economist and the government.
2. Find out the median and the mode for the following table :

| No. of days absent | No. of students |
|---|---|
| Less than 5 | 29 |
| Less than 10 | 224 |
| Less than 15 | 465 |
| Less than 20 | 582 |
| Less than 25 | 634 |
| Less than 30 | 644 |
| Less than 35 | 650 |
| Less than 40 | 653 |
| Less than 45 | 655 |

## SECTION—B

3. Calculate the Pearson's coefficient of correlation from the following taking 100 and 50 as the assumed average of X and Y respectively :

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | 104 | 111 | 104 | 114 | 118 | 117 | 105 | 108 | 106 | 100 | 104 | 105 |
| Y | 57 | 55 | 47 | 45 | 45 | 50 | 64 | 63 | 66 | 62 | 69 | 61 |

4. (a) Particulars regarding the income of two villages are given below :

| | Village A | Village B |
|---|---|---|
| No. of people | 600 | 500 |
| Average income | 175 | 186 |
| Variance of income | 100 | 81 |

(i) In which village is the variance of income greater ?

(ii) What is the total income of both the villages put together ?

(iii) What is the average income of the people of both the villages put together ?

(iv) What is the combined standard deviation ?

(b) Calculate coefficient of quartile deviation and coefficient of variation from the following data :

| Marks | No. of Students |
|---|---|
| Below 20 | 8 |
| Below 40 | 20 |
| Below 60 | 50 |
| Below 80 | 70 |
| Below 100 | 80 |

5,5



## SECTION—C

5. Calculate the Laspeyre's, Paasche's and Fisher's Ideal Index number for the following data, treating 2018 as the base year.

| | 2018 | | 2019 | |
|---|---|---|---|---|
| Commodity | Quantity | Price | Quantity | Price |
| Wheat | 562 | 170 | 632 | 72 |
| Rice | 535 | 192 | 756 | 70 |
| Sugar | 639 | 195 | 926 | 95 |
| Ghee | 128 | 187 | 255 | 92 |
| Fuel | 542 | 185 | 632 | 92 |
| Gold | 217 | 150 | 314 | 180 |

6. Calculate quantity index by (i) Laspeyre's method, (ii) Paasche's method, (iii) Fisher's method.

| Year | | 2014 | | 2016 |
|---|---|---|---|---|
| Commodity | Price $p_0$ | Total Value $(p_0q_0)$ | Price $p_1$ | Total Value $(p_1q_1)$ |
| A | 10 | 100 | 12 | 144 |
| B | 12 | 144 | 14 | 196 |
| C | 14 | 196 | 16 | 256 |
| D | 16 | 256 | 18 | 324 |
| E | 18 | 324 | 20 | 400 |