2/5/2023
Evening

(i) Printed Pages: 4 Roll No. .....

(ii) Questions : 14 Sub. Code : 0 8 6 8

Exam. Code : 0 0 2 2

**Bachelor of Business Administration 2nd Semester**

**(2053)**

**BUSINESS STATISTICS**

**Paper—BBA 122**

**Time Allowed : Three Hours]** **[Maximum Marks : 80**

**Note :**—Attempt **FOUR** short answer type questions from Section A. Attempt **TWO** questions each from Sections B and C respectively.

## SECTION—A

1. Discuss the scope of Statistics. 5

2. The frequency distribution of weight in grams of mangoes of a given variety is given below. Calculate the arithmetic Mean and Median :

| Weight in grams | 410–419 | 420–429 | 430–439 | 440–449 |
|---|---|---|---|---|
| No. of Mangoes | 14 | 20 | 42 | 54 |

| Weight in grams | 450–459 | 460–469 | 470–479 |
|---|---|---|---|
| No. of Mangoes | 45 | 18 | 7 |

5

3. What is Skewness ? How is it different from Kurtosis ? 5

4. Calculate Mean Deviation from Median for the following distribution :

| Class Interval | 50–100 | 100–150 | 150–200 | 200–250 |
|---|---|---|---|---|
| f | 7 | 18 | 25 | 31 |

| Class Interval | 250–300 | 300–350 |
|---|---|---|
| f | 15 | 4 |

5

5. From the following series of annual data, find the trend line by the method of semi-averages :

| Year | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| Actual Value | 170 | 231 | 261 | 267 | 278 |

| Year | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|
| Actual Value | 302 | 299 | 298 | 340 |

5

6. The price index and quantity index of a commodity were 120 and 110 respectively in 2015 with base 2014. Find the value index number in 2015 with 2014 as base. 5

## SECTION—B

7. (i) Why standard deviation is the most precise measure of dispersion as compared to other measures ?

(ii) Highlight the important functions of Statistics.

7+8=15

8. (i) Calculate correlation coefficient r(x, y) from the following data :

$n = 10$, $\Sigma x = 140$, $\Sigma y = 150$, $\Sigma(x-10)^2 = 180$,

$\Sigma(y-15)^2 = 215$, $\Sigma(x-10)(y-15) = 60$

(ii) Differentiate between positive and negative correlation.

10+5=15

9. (i) Calculate the coefficient of variation of the two distributions. Which series is more variable ?

| Weight in Kgs : | 20–30 | 30–40 | 40–50 | 50–60 | 60–70 | Total |
|---|---|---|---|---|---|---|
| Class A : | 7 | 10 | 20 | 18 | 7 | 62 |
| Class B : | 5 | 9 | 21 | 15 | 6 | 56 |

(ii) Point out the merits and demerits of Mode. 10+5=15

10. A panel of Judges A and B graded 7 debtors the following marks independently :

| Debtor : | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| Marks by A : | 40 | 34 | 28 | 30 | 44 | 38 | 31 |
| Marks by B : | 32 | 39 | 26 | 30 | 38 | 34 | 28 |

An Eighth debtor was awarded 36 marks by Judge A while Judge B was not present. Had Judge B been present, how many marks are expected to be awarded to Eighth debtor assuming same degree of relationship exists in judgment.

15

## SECTION—C

11. (i) Highlight the different methods for measuring trend component in time series.

(ii) Explain the problems in analysis of time series.

10+5=15

12. Fit a linear trend to the following data by the least squares method. Also, estimate the production for the year 2009 :

| Year | : | 2000 | 2002 | 2004 | 2006 | 2008 |
|---|---|---|---|---|---|---|
| Production (in 000 units) | : | 18 | 21 | 23 | 27 | 16 |

15

13. Calculate Laspeyre's, Paasche's and Fisher's indices for the following data :

| Commodity | Base Year | | Current Year | |
|---|---|---|---|---|
| | Price | Quantity | Price | Quantity |
| A | 6.5 | 500 | 10.8 | 560 |
| B | 2.8 | 124 | 2.9 | 148 |
| C | 4.7 | 69 | 8.2 | 78 |
| D | 10.9 | 38 | 13.4 | 24 |
| E | 8.6 | 49 | 10.8 | 27 |

Also examine which of the above indices satisfy (i) Time reversal test (ii) Factor reversal test. 15

14. Find Bowley's coefficient of skewness from the following data :

| Profits (in Rs.) | : | 10–20 | 20–30 | 30–40 | 40–50 | 50–60 |
|---|---|---|---|---|---|---|
| No. of Companies | : | 15 | 20 | 30 | 10 | 5 |

15