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# IV Semester 5 Year B.B.A. LL.B. (Even Sem.) Examination, August/September 2024
# BUSINESS STATISTICS

Duration : 3 Hours | Max. Marks : 100

**Instructions : 1. Answer Q. No. 9 and any five of the remaining questions.**

**2. Q. No. 9 carries 20 marks and the remaining questions carry 16 marks each.**

**3. Answer should be written in English only.**

**4. Use simple calculator only.**

Q. No. 1. Define statistics. Briefly explain the scope and importance of statistics. Marks : 1×16=16

Q. No. 2. What is Index Number ? Explain the importance and steps in constructing the index number. Marks : 1×16=16

Q. No. 3. Calculate mean, median and mode for the following data : Marks : 1×16=16

| Class Intervals | Frequency |
|---|---|
| 15 – 19 | 06 |
| 20 – 24 | 14 |
| 25 – 29 | 12 |
| 30 – 34 | 10 |
| 35 – 39 | 10 |
| 40 – 44 | 09 |
| 45 – 49 | 09 |
| 50 – 54 | 10 |
| 55 – 59 | 05 |
| 60 – 64 | 04 |
| 65 – 69 | 01 |

P.T.O.

Q. No. 4. Calculate quartile deviation and coefficient of quartile deviation from the following data : Marks : 1×16=16

| Age (Years) | No. of Teachers |
|---|---|
| 50 | 10 |
| 51 | 12 |
| 52 | 15 |
| 53 | 10 |
| 54 | 14 |
| 55 | 18 |
| 56 | 06 |

Q. No. 5. Calculate Fisher's Ideal Index for the following data and verify that it satisfies TRT and FRT. Marks : 1×16=16

| Commodities | 1999 | | 2000 | |
|---|---|---|---|---|
| | Price | Quantity | Price | Quantity |
| I | 6 | 50 | 10 | 56 |
| II | 2 | 100 | 2 | 120 |
| III | 4 | 60 | 6 | 60 |
| IV | 10 | 30 | 12 | 24 |
| V | 8 | 40 | 12 | 36 |

Q. No. 6. Explain correlation analysis. Marks : 1×16=16

Q. No. 7. Calculate standard deviation from the following data : Marks : 1×16=16

**X :** 20 30 40 50 55 60 70

Q. No. 8. Write short notes on **any two** of the following : Marks : 2×8=16

(a) Skewness

(b) Primary data

(c) Tabulation.

Q. No. 9. Solve **any two** of the following questions : Marks : 2×10=20

(a) Define Average. What are the functions and characteristics of good average ?

(b) Calculate Mean Deviation.

| Age (Years) | No. of Teachers |
|---|---|
| 70 | 12 |
| 71 | 10 |
| 72 | 15 |
| 73 | 10 |
| 75 | 18 |
| 77 | 14 |
| 76 | 06 |

(c) Calculate geometric mean for the following data :

| Weights (x) | No. of persons (f) |
|---|---|
| 135 | 3 |
| 145 | 6 |
| 147 | 4 |
| 157 | 6 |
| 167 | 3 |
| 182 | 5 |
| 198 | 4 |

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# Fourth Semester 5 Year B.B.A., LL.B. Examination, March/April 2024 (Odd Sem.)
## BUSINESS STATISTICS

Duration : 3 Hours | Max. Marks : 100

**Instructions :**
1. **Answer Q. No. 9 and any five of the remaining questions.**
2. **Q. No. 9 carries 20 marks and the remaining questions carry 16 marks.**
3. **Answers should be written in English completely.**
4. **Use only simple calculator.**

Q. No. 1. Calculate A.M., Median and Mode for the following data. Marks : 16

| Class Marks | No. of Students |
|---|---|
| More than 0 | 200 |
| More than 10 | 190 |
| More than 20 | 172 |
| More than 30 | 142 |
| More than 40 | 110 |
| More than 50 | 70 |
| More than 60 | 50 |
| More than 70 | 35 |
| More than 80 | 22 |
| More than 90 | 10 |
| More than 100 | 00 |

Q. No. 2. Discuss the meaning and scope of statistics state the importance of statistics with reference to commerce and industry. Marks : 16

P.T.O.

Q. No. 3. Calculate standard deviation and coefficient of variation Marks : 16

| C.I. | f |
|---|---|
| 10 – 19 | 5 |
| 20 – 29 | 8 |
| 30 – 39 | 17 |
| 40 – 49 | 12 |
| 50 – 59 | 8 |
| 60 – 69 | 3 |
| 70 – 79 | 7 |

Q. No. 4. What is meant by 'measure of central tendency' ? Define A.M. Mode, Median and G.M. Marks : 16

Q. No. 5. The following data gives the monthly income and expenditure on food of 10 families Marks : 16

| Income | Expenditure |
|---|---|
| 120 | 40 |
| 90 | 36 |
| 80 | 40 |
| 150 | 45 |
| 130 | 40 |
| 140 | 44 |
| 110 | 45 |
| 95 | 38 |
| 75 | 50 |
| 101 | 35 |

Calculate both the Regression Equations.

Q. No. 6. Using the following data compute Fisher's ideal price and quantity index number and verify fisher's Ideal index number satisfies time reversal and factor reversal test. Marks : 16

| | Base Year | | Current Year | |
|---|---|---|---|---|
| **Commodities** | **Price** | **Quantity** | **Price** | **Quantity** |
| A | 6 | 50 | 10 | 60 |
| B | 2 | 100 | 3 | 125 |
| C | 4 | 60 | 6 | 65 |
| D | 10 | 30 | 13 | 24 |

Q. No. 7. What is dispersion ? Explain the various measures of dispersion with its merits and demerits. Marks : 16

Q. No. 8. Write a short note on **any two** of the following. Marks : 2×8=16

(a) Secondary data

(b) Cost of living index number

(c) Tabulation.

Q. No.9. Solve **any two** of the following problems. Marks : 2×10=20

a) Compute the value of quartiles

| **Rent in Rs.** | **No. of houses** |
|---|---|
| 150 – 250 | 8 |
| 250 – 350 | 10 |
| 350 – 450 | 15 |
| 450 – 550 | 25 |
| 550 – 650 | 40 |
| 650 – 750 | 20 |
| 750 – 850 | 15 |
| 850 - 950 | 7 |

b) The marks scored by Students A and B are given below. Represent the data by means of pie chart.

| Marks scored by | | |
|---|---|---|
| **Subject** | **Student A** | **Student B** |
| English | 60 | 40 |
| Statistics | 90 | 50 |
| Economics | 90 | 70 |
| Accounts | 70 | 50 |
| Commerce | 50 | 60 |

c)

| **Classes** | **f** |
|---|---|
| 15 – 25 | 6 |
| 25 – 35 | 9 |
| 35 – 45 | 10 |
| 45 – 55 | 21 |
| 55 – 65 | 26 |
| 65 – 75 | 16 |
| 75 – 85 | 12 |

Find the geometric mean for the above frequency distribution.

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**Fourth Semester 5 Year B.B.A.,LL.B. Examination, Sept./Oct. 2023 (June 2023)**
**BUSINESS STATISTICS**

Duration : 3 Hours | Max. Marks : 100

**Instructions : 1. Answer Q. No. 9 and any five of the remaining questions.**
**2. Q. No. 9 carries 20 marks and the remaining questions carry 16 marks each.**
**3. Answer should be written in English only.**

Q. No. 1. What is primary data ? Explain the methods of collecting primary data. Marks : 16

Q. No. 2. Calculate mean, median and mode for the following data : Marks : 16

| **Marks :** | 0 – 10 | 10 – 20 | 20 – 30 | 30 – 40 |
|---|---|---|---|---|
| **Frequency :** | 14 | 23 | 35 | 20 |
| | 40 – 50 | 50 – 60 | 60 – 70 | 70 – 80 |
| | 8 | 5 | 15 | 10 |

Q. No. 3. Define index numbers. Briefly explain the types of index number. Marks : 16

Q. No. 4. Compute quartile deviation and the co-efficient of quartile deviation from the following data. Marks : 16

| **Marks** | **No. of Students** |
|---|---|
| 10 – 19 | 12 |
| 20 – 29 | 17 |
| 30 – 39 | 05 |
| 40 – 49 | 10 |
| 50 – 59 | 06 |
| 60 – 69 | 20 |
| 70 – 79 | 15 |
| 80 – 89 | 13 |

P.T.O.

Q. No. 5. Calculate Karl Pearson co-efficient of correlation from the following : Marks : 16

| X | Y |
|---|---|
| 249 | 237 |
| 251 | 238 |
| 248 | 236 |
| 252 | 240 |
| 258 | 245 |
| 269 | 255 |
| 271 | 254 |
| 272 | 252 |
| 280 | 258 |
| 275 | 251 |

Q. No. 6. Price and quantities of the base year and the current year for eight group of commodities are given below : Marks : 16

| Commodities | Price | | Quantity | |
|---|---|---|---|---|
| | Base Year | Current Year | Base Year | Current Year |
| A | 14 | 15 | 55 | 80 |
| B | 10 | 12 | 100 | 90 |
| C | 16 | 18 | 60 | 70 |
| D | 18 | 20 | 30 | 40 |
| E | 20 | 22 | 40 | 40 |
| F | 12 | 14 | 70 | 60 |
| G | 09 | 11 | 90 | 80 |
| H | 08 | 13 | 80 | 75 |

Calculate Fishers ideal index number and verify both TRT and FRT tests.

Q. No. 7. A panel of 2 judges Mr. A and Mr. B graded seven dance performances by awarding marks as follows. Analyse. Marks : 16

| **Performances** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| **Judge A** | 46 | 42 | 44 | 40 | 43 | 41 | 45 |
| **Judge B** | 40 | 38 | 36 | 35 | 39 | 37 | 41 |

Q. No. 8. Write short notes on **any two** of the following : Marks : 2×8=16

(a) Tabulation

(b) Skewness

(c) Sources of secondary data.

Q. No. 9. Solve **any two** of the following problems : Marks : 2×10=20

(a) What is correlation ? What is its utility ?

(b) Represent the following data through a simple bar diagram and histogram.

| **Marks :** | 0 – 10 | 10 – 20 | 20 – 30 | 30 – 40 | 40 – 50 |
|---|---|---|---|---|---|
| **Students :** | 10 | 12 | 18 | 15 | 25 |

(c) Find quartiles from the following data :

| **Age (Years)** | **No. of Employees** |
|---|---|
| Below 20 | 13 |
| 20 – 25 | 29 |
| 25 – 30 | 46 |
| 30 – 35 | 60 |
| 35 – 40 | 112 |
| 40 – 45 | 94 |
| 45 – 50 | 45 |
| 50 and above | 21 |

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**IV Semester 5 Year B.B.A. LL.B. Examination, March/April 2023 (Dec. 2022)**
**BUSINESS STATISTICS**

Duration : 3 Hours | Max. Marks : 100

**Instructions :**
1. **Answer Q. No. 9 and any five of the remaining questions.**
2. **Q. No. 9 carries 20 marks and the remaining questions carry 16 marks each.**
3. **Answers should be written in English completely.**
4. **Use simple calculator only.**

Q. No. 1. What is statistics ? Explain the scope and limitations of statistics. Marks : 16

Q. No. 2. Calculate Mean, Median and Mode for the following. Marks : 16

| Value | Frequency |
|---|---|
| 0 – 10 | 4 |
| 10 – 20 | 8 |
| 20 – 30 | 14 |
| 30 – 40 | 19 |
| 40 – 50 | 25 |
| 50 – 60 | 32 |
| 60 – 70 | 24 |
| 70 – 80 | 17 |
| 80 – 90 | 12 |
| 90 – 100 | 7 |

Q. No. 3. Define an Index Number. Explain the steps in construction of Index Numbers. Marks : 16

P.T.O.

Q. No. 4. Calculate co-efficient of variation from the following data using Mean and Standard deviation. Marks : 16

| Class | Frequency |
|---|---|
| 0 – 5 | 03 |
| 5 – 10 | 09 |
| 10 – 15 | 15 |
| 15 – 20 | 22 |
| 20 – 25 | 26 |
| 25 – 30 | 19 |
| 30 – 35 | 13 |
| 35 – 40 | 08 |

Q. No. 5. Define correlation. Explain different types of correlation and measures of correlation. Marks : 16

Q. No. 6. Calculate Fisher's Ideal index numbers for the following data verify that it satisfies Time Reversal and Factor Reversal (TRT) and (FRT). Marks : 16

| Commodities | Base year | | Current year | |
|---|---|---|---|---|
| | Price | quantity | Price | quantity |
| A | 4 | 20 | 5 | 24 |
| B | 5 | 15 | 3 | 24 |
| C | 2 | 30 | 5 | 35 |
| D | 1 | 50 | 2 | 60 |
| E | 3 | 25 | 4 | 30 |

Q. No. 7. Explain in terms, classification and tabulation of data. Mention the requisites of a good statistical table. Marks : 16

Q. No. 8. Write a short note on **any two** of the following : Marks : 2×8=16

(a) Graphical Representation.

(b) Measures of central tendency

(c) Skewness.

Q. No. 9. Solve **any two** of the following problem : Marks : 2×10=20

(a) Calculate Spearman's rank correlation for the following :

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **X** : | 12 | 17 | 19 | 32 | 42 | 56 | 64 |
| **Y** : | 70 | 54 | 45 | 50 | 37 | 41 | 57 |

(b) Draft a blank table showing the distribution of students of university according to

(i) Sex

(ii) Faculties – Arts, Science, Commerce

(iii) Four years 2000, 2001, 2002, 2003

(iv) Age group – Below 18 years, 18 – 21 years and 22 years.

(c) Find the Geometric Mean for the following frequency distribution.

| **Classes** | **Frequency** |
|---|---|
| 15 – 25 | 06 |
| 25 – 35 | 09 |
| 35 – 45 | 10 |
| 45 – 55 | 21 |
| 55 – 65 | 26 |
| 65 – 75 | 16 |
| 75 – 85 | 12 |

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# IV Semester 5 Year B.B.A. LL.B. Examination, October/November 2022 (June 2022)
## BUSINESS STATISTICS

Duration : 3 Hours | Max. Marks : 100

**Instructions :**
1. **Answer Q. No. 9 and any five of the remaining questions.**
2. **Q. No. 9 carries 20 marks and the remaining questions carry 16 marks each.**
3. **Answers should be written in English completely.**
4. **Use simple calculator.**

Q. No. 1. Define Statistics and explain the methods of collecting primary data. Marks : 16

Q. No. 2. Calculate Geometric Mean and Harmonic Mean of the following data on speed per hour of selected vehicles. Marks : 16

| Speed per hour |
|---|
| 220 |
| 153 |
| 125 |
| 182 |
| 174 |
| 132 |
| 140 |
| 149 |
| 166 |
| 193 |

Q. No. 3. Find the skewness of the given data using Karl Pearson's Method. Marks : 16

| Income ('000 Rs.) | No. of Households |
|---|---|
| 10 – 20 | 18 |
| 20 – 30 | 13 |
| 30 – 40 | 22 |
| 40 – 50 | 21 |
| 50 – 60 | 27 |
| 60 – 70 | 19 |
| 70 – 80 | 11 |
| 80 – 90 | 9 |
| 90 – 100 | 5 |
| 100 – 110 | 1 |

P.T.O.

Q. No. 4. Estimate simple linear regression equation Y on X for the data given below and forecast Y values when X takes 40, 120, 135. Marks : 16

| Y | X |
|---|---|
| 97 | 11 |
| 99 | 15 |
| 88 | 19 |
| 99 | 34 |
| 63 | 27 |
| 44 | 23 |
| 37 | 29 |
| 41 | 49 |
| 29 | 42 |
| 15 | 31 |

Q. No. 5. What is index number ? Discuss Factor Reversal Test and Time Reversal Test. Marks : 16

Q. No. 6. Calculate Spearman's Rank Correlation Coefficient for the following data. Marks : 16

| Y | X |
|---|---|
| 28 | 66 |
| 32 | 44 |
| 30 | 55 |
| 26 | 44 |
| 31 | 55 |
| 15 | 83 |
| 45 | 41 |
| 22 | 84 |
| 52 | 35 |
| 36 | 83 |

Q. No. 7. Calculate index number for the following data using simple aggregate and simple average of price relative method. Marks : 16

| Items | 2019 (Base Year) Price (Rs.) | 2020 Price (Rs.) |
|---|---|---|
| Rice | 47 | 59 |
| Dhal | 40 | 53 |
| Potato | 32 | 18 |
| Onion | 70 | 30 |
| Oil | 132 | 171 |
| Sugar | 46 | 32 |

Q. No. 8. Write short note on **any two** of the following. Marks : 8×2=16

(a) Differentiate correlation and regression analysis.

(b) Measures of Central Tendency.

(c) Secondary data.

Q. No. 9. Solve **any two** of the following. Marks : 10×2=20

(a) Present the data on colour of cloths worn by 20 students in their re-union by Bar diagram and Pie chart.

Blue, Blue, Green, Red, Rose, Orange, Blue, Orange, Red, Red, Orange, Green, Green, Rose, Red, Red, Rose, Red, Blue, Blue.

(b) Calculate Karl Pearson coefficient of correlation for the data given below.

| Y | X |
|---|---|
| 7 | 33 |
| 6 | 37 |
| 9 | 42 |
| 13 | 27 |
| 21 | 26 |
| 20 | 21 |
| 17 | 25 |
| 14 | 16 |

(c) Tabulation of statistical data.

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## IV Semester 5 Year B.B.A., LL.B. Examination, April/May 2022 (Dec. 2021)
## BUSINESS STATISTICS

Duration : 3 Hours Max. Marks : 100

**Instructions : 1. Answer Q. No. 9 and any five of the remaining questions.**
**2. Q. No. 9 carries 20 marks and the remaining questions carry 16 marks each.**
**3. Answers should be written in English completely.**
**4. Use simple calculator.**

Q. No. 1. Define statistics. Explain the functions and the limitations of statistics. Marks : 16

Q. No. 2. Find mean, mode and quartiles for the following data. Marks : 16

| Wages (Rs.) | No. of workers |
|---|---|
| 10 – 30 | 3 |
| 30 – 50 | 25 |
| 50 – 70 | 34 |
| 70 – 90 | 34 |
| 90 – 110 | 12 |
| 110 – 130 | 2 |
| 130 – 150 | 2 |

Q. No. 3. The following are the distribution of lives of electric bulbs manufactured by two firms. Marks : 16

| Life (hours) | No. of bulbs (Firm A) | No. of bulbs (Firm B) |
|---|---|---|
| 800 – 900 | 8 | 16 |
| 900 – 1000 | 21 | 24 |
| 1000 – 1100 | 14 | 40 |
| 1100 – 1200 | 4 | 16 |
| 1200 – 1300 | 3 | 4 |

(a) Which firm bulbs perform better ?

(b) Which firms bulbs is more consistent ?

P.T.O.

Q. No. 4. Calculate Karl Pearson's Co-efficient of skewness for the following data. Marks : 16

| Marks Scored | No. of Students |
|---|---|
| 0 – 10 | 1 |
| 10 – 20 | 5 |
| 20 – 30 | 8 |
| 30 – 40 | 4 |
| 40 – 50 | 2 |

Q. No. 5. For the following data, construct Fisher's ideal index number and test for TRT and FRT. Marks : 16

| Items | Base Year | | Current Year | |
|---|---|---|---|---|
| | Price | Expenditure | Price | Expenditure |
| A | 6 | 330 | 5 | 210 |
| B | 4 | 120 | 7 | 322 |
| C | 8 | 192 | 10 | 290 |
| D | 8 | 232 | 6 | 114 |
| E | 10 | 80 | 8 | 112 |
| F | 4 | 128 | 5 | 120 |

Q. No. 6. From the following information : Marks : 16

| | Sales (Rs. Crores) | Advertisement (Rs. Crores) |
|---|---|---|
| Mean | 40 | 6 |
| Standard Deviation | 10 | 1.5 |

$r = 0.9$.

(a) Estimate sales when advertisement expenditure is Rs. 10 crores.

(b) Estimate advertisement expenditure when sales is 60 crores.

Q. No. 7. Three Judges in a beauty competition rank the 10 entries in the following order. Marks : 16

| Judge 1 | Judge 2 | Judge 3 |
|---|---|---|
| 1 | 4 | 6 |
| 5 | 8 | 7 |
| 4 | 7 | 8 |
| 8 | 6 | 1 |
| 9 | 5 | 5 |
| 6 | 9 | 10 |
| 10 | 10 | 9 |
| 7 | 3 | 2 |
| 3 | 2 | 3 |
| 2 | 1 | 4 |

Using Rank Correlation Co-efficient, find out which pair of Judges have nearest approach to beauty.

Q. No. 8. Write short notes on **any two** of the following. Marks : 2×8=16

(a) Dispersion.

(b) Range.

(c) Class limits and class intervals.

Q. No. 9. Solve **any two** of the following problems. Marks : 2×10=20

(a) Calculate median for the following.

| Class Interval | Frequency |
|---|---|
| 3.0 – 3.9 | 2 |
| 4.0 – 4.9 | 14 |
| 5.0 – 5.9 | 20 |
| 6.0 – 6.9 | 31 |
| 7.0 – 7.9 | 30 |
| 8.0 – 8.9 | 8 |

(b) Draw a Histogram and find mode for the following data.

| Height (cms.) | No. of Students |
|---|---|
| 140 – 150 | 5 |
| 150 – 160 | 15 |
| 160 – 170 | 20 |
| 170 – 180 | 10 |
| 180 – 190 | 2 |

(c) Construct cost of living index using Family Budget Method for the following data.

| Items | Price | | |
|---|---|---|---|
| | Base Year | Current Year | Weights |
| Food | 200 | 280 | 30 |
| Clothing | 100 | 200 | 20 |
| Rent | 150 | 120 | 20 |
| Fuel | 50 | 100 | 10 |
| Miscellaneous | 100 | 200 | 20 |

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# IV Semester 5 Years B.B.A.,LL.B. Examination, October/November 2021
## BUSINESS STATISTICS

Duration : 3 Hours | Max. Marks : 100

**Instructions : 1. Answer Q. No. 11 and any five of the remaining questions.**
**2. Q. No. 11 carries 20 marks and the remaining questions carry 16 marks each.**
**3. Use only simple calculator.**

Q. No. 1. Define statistics. Explain the scope of statistics. Marks : 16

Q. No. 2. Calculate Arithmetic mean and median from the following data : Marks : 16

| Wages (in Rs.) | No. of Workers |
|---|---|
| 110 – 100 | 2 |
| 100 – 90 | 2 |
| 90 – 80 | 4 |
| 80 – 70 | 8 |
| 70 – 60 | 8 |
| 60 – 50 | 12 |
| 50 – 40 | 9 |
| 40 – 30 | 7 |
| 30 – 20 | 5 |
| 20 – 10 | 1 |
| 10 – 0 | 2 |

Q. No. 3. From the following data calculate : Marks : 16

(a) Range

(b) Quartile deviation of the marks of students.

| Marks | No. of Students |
|---|---|
| 40 | 10 |
| 45 | 12 |
| 52 | 14 |
| 53 | 9 |

P.T.O.

| | |
|---|---|
| 54 | 10 |
| 55 | 11 |
| 56 | 12 |
| 57 | 11 |
| 68 | 9 |
| 70 | 8 |

Q. No. 4. The scores of two batsmen Mr. A and Mr. B in ten cricket matches are given below : Marks : 16

| Mr. A | Mr. B |
|---|---|
| 32 | 19 |
| 28 | 31 |
| 47 | 48 |
| 63 | 53 |
| 71 | 67 |
| 39 | 90 |
| 10 | 10 |
| 60 | 62 |
| 96 | 40 |
| 14 | 80 |

Using co-efficient of variation, find whether batsmen Mr. A or Mr. B is more consistent in scoring ?

Q. No. 5. Prices and quantities of the base year and current year for eight groups of commodities are given below : Marks : 16

| Commodities | Price | | Quantity | |
|---|---|---|---|---|
| | Base year | Current year | Base year | Current year |
| A | 12 | 20 | 55 | 120 |
| B | 10 | 12 | 100 | 80 |
| C | 14 | 15 | 60 | 80 |
| D | 16 | 18 | 30 | 70 |
| E | 18 | 20 | 40 | 40 |
| F | 20 | 15 | 70 | 60 |
| G | 20 | 16 | 90 | 100 |
| H | 15 | 18 | 80 | 80 |

Calculate Fisher's ideal index number and verify TRT and FRT for the same.

Q. No. 6. Ten competitors in a music competition were ranked by three judges X, Y and Z in the following order Marks : 16

| Judge X | Judge Y | Judge Z |
|---|---|---|
| 1 | 3 | 6 |
| 6 | 5 | 4 |
| 5 | 8 | 9 |
| 10 | 4 | 8 |
| 3 | 7 | 1 |
| 2 | 10 | 2 |
| 4 | 2 | 3 |
| 9 | 1 | 10 |
| 7 | 6 | 5 |
| 8 | 9 | 7 |

By using Rank correlation, find out which pair of judges have the nearest approach to the common test in music.

Q. No. 7. Calculate Mode and Quartiles from the following data : Marks : 16

| Wages (in Rs.) | No. of workers |
|---|---|
| Above 0 | 80 |
| Above 10 | 77 |
| " 20 | 72 |
| " 30 | 65 |
| " 40 | 55 |
| " 50 | 43 |
| " 60 | 28 |
| " 70 | 16 |
| " 80 | 10 |
| " 90 | 8 |
| " 100 | 0 |

Q. No. 8. Explain the characteristics and types of collecting statistical data. Marks : 16

Q. No. 9. Find Karl Pearson's co-efficient of skewness for following data : Marks : 16

| Income | No. of Households |
|---|---|
| 10 – 20 | 18 |
| 20 – 30 | 13 |
| 30 – 40 | 22 |

| | |
|---|---|
| 40 – 50 | 21 |
| 50 – 60 | 27 |
| 60 – 70 | 19 |
| 70 – 80 | 11 |
| 80 – 90 | 9 |
| 90 – 100 | 5 |
| 100 – 110 | 1 |

Q. No. 10. Write short notes on **any two** of the following : Marks : 2×8=16

(a) Classification of data

(b) Skewness

(c) Correlation.

Q. No. 11. Solve **any two** of the following problems : Marks : 2×10=20

(a) You are given the following data :
The value of median = 50, calculate the missing frequency.

| Expenditure (Rs.) | No. of Families |
|---|---|
| 0 – 20 | 14 |
| 20 – 40 | ? |
| 40 – 60 | 27 |
| 60 – 80 | 21 |
| 80 – 100 | 15 |

(b) The following data relate to the expenditure of two families per month :

| Items of expenditure | Family 'A' (Rs.) | Family 'B' (Rs.) |
|---|---|---|
| Food | 400 | 600 |
| Rent | 200 | 400 |
| Clothing | 200 | 300 |
| Miscellaneous | 100 | 500 |

Represent the above data by angular diagrams (Pie).

(c) From the following data, obtain the regression equation of X on Y and also that of Y on X.

| X | 10 | 6 | 10 | 6 | 8 |
|---|---|---|---|---|---|
| Y | 6 | 2 | 10 | 4 | 8 |

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**Fourth Semester 5 Years B.B.A., LL.B. Examination, March/April 2021**
**BUSINESS STATISTICS**

Duration : 3 Hours Max. Marks : 100

**Instructions : 1. Answer Q. No. 9 and any five of the remaining questions.**

**2. Q. No. 9 carries 20 marks and remaining question carry 16 marks each.**

**3. Use simple calculator.**

Q. No. 1. Calculate the A.M. Mode and Quartiles for the following data.

| Class Limits | Frequency |
|---|---|
| 28 – 31 | 1 |
| 32 – 35 | 14 |
| 36 – 39 | 56 |
| 40 – 43 | 172 |
| 44 – 47 | 245 |
| 48 – 51 | 263 |
| 52 – 55 | 156 |
| 56 – 59 | 67 |
| 60 – 63 | 23 |
| 64 – 67 | 3 |

Marks : 16

Q. No. 2. Scores of 2 golfers for 24 rounds were as follows :

| | | | | | | |
|---|---|---|---|---|---|---|
| Golfer A : | 74 | 75 | 78 | 78 | 72 | 77 |
| | 79 | 78 | 81 | 76 | 72 | 77 |
| | 74 | 70 | 78 | 79 | 80 | 81 |
| | 80 | 75 | 71 | 73 | 72 | 74 |
| Golfer B : | 86 | 84 | 80 | 88 | 88 | 85 |
| | 86 | 82 | 82 | 79 | 86 | 80 |
| | 82 | 76 | 86 | 89 | 87 | 83 |
| | 80 | 88 | 86 | 81 | 84 | 87 |

Find :

(1) Which player is better scorer ?

(2) Which player may be considered to be a more consistent player ?

Marks : 16

P.T.O.

Q. No. 3. Calculate the correlation co-efficient from the following data on height (in inches) and weight (in pounds) of 12 boys.

| Height | Weight |
|---|---|
| 62 | 118 |
| 63 | 130 |
| 63 | 118 |
| 66 | 135 |
| 68 | 152 |
| 67 | 140 |
| 63 | 115 |
| 69 | 154 |
| 71 | 165 |
| 70 | 170 |
| 68 | 145 |
| 72 | 152 |

Marks : 16

Q. No. 4. Calculate Fisher's price index number from the following data and that it satisfies time reversal test and factor reversal test.

| Item | Base Year | | Current Year | |
|---|---|---|---|---|
| | Price | Expenditure | Price | Expenditure |
| A | 6 | 300 | 10 | 560 |
| B | 2 | 200 | 02 | 240 |
| C | 4 | 240 | 06 | 360 |
| D | 8 | 320 | 12 | 432 |

Marks : 16

Q. No. 5. "Statistics may be defined as a science of collection, presentation, analysis and interpretation of numerical data". Elucidate the above statement.

Marks : 16

Q. No. 6. Define an Index number. Discuss the main steps involved in the construction of price index numbers.

Marks : 16

Q. No. 7. What is meant by tabulation of data ? Give the main steps in the tabulation of data.

Marks : 16

Q. No. 8. Write a short note on **any two** of the following : Marks : 8×2=16

(a) Class limits and Class interval

(b) Primary data

(c) Dispersion.

Q. No. 9. Answer **any two** of the following : Marks : 10×2=20

(a) From the data given below find :

(1) The two regression equations.

(2) The most likely age of wife when husband's age is 25.

| Age of husband (in years) | Age of wife (in years) |
|---|---|
| 22 | 18 |
| 23 | 20 |
| 23 | 21 |
| 24 | 20 |
| 26 | 21 |
| 27 | 22 |
| 27 | 23 |
| 28 | 24 |
| 30 | 25 |
| 30 | 26 |

(b) Find Karl Pearson's coefficient of skewness.

| x : | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
|---|---|---|---|---|---|---|---|
| f : | 8 | 11 | 19 | 25 | 21 | 10 | 06 |

(c) Compute the cost of living index number for 1970 with 1959 of base year for the following.

| Commodities | Weight | Price | |
|---|---|---|---|
| | | 1959 | 1970 |
| Food | 52 | 25.0 | 5.11 |
| Clothing | 14 | 13.0 | 20.0 |
| House rent | 8 | 15.0 | 30.0 |
| Education | 6 | 2.3 | 5.4 |
| Fuel | 3 | 0.8 | 1.6 |
| Miscellaneous | 17 | 6.9 | 30.0 |

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Fourth Semester 5 Year B.B.A.LL.B. Examination, June/July 2019

BUSINESS STATISTICS (Old/New)

Duration : 3 Hours

Max. Marks : 100

**Instructions** : 1. Answer Q. No. **9** and **any five** of the remaining questions.

2. Q. No. **9** carries **20** marks and **remaining** questions carry **16** marks **each**.

3. Answers should be written in **English**.

4. **Use** simple Calculator.

Q. No. 1. Discuss the functions and limitations of Statistics. Marks : 16

Q. No. 2. Calculate the mean, median and mode of the following distribution : Marks : 16

| Class | Frequency |
|---|---|
| 28 – 31 | 01 |
| 32 – 35 | 14 |
| 36 – 39 | 56 |
| 40 – 43 | 172 |
| 44 – 47 | 245 |
| 48 – 51 | 263 |
| 52 – 55 | 156 |
| 56 – 59 | 67 |
| 60 – 63 | 23 |
| 64 – 67 | 03 |

P.T.O.

Q. No. 3. Calculate the mean and standard deviation from the following data : Marks : 16

| Value | Frequency |
|---|---|
| 90 – 99 | 02 |
| 80 – 89 | 12 |
| 70 – 79 | 22 |
| 60 – 69 | 20 |
| 50 – 59 | 14 |
| 40 – 49 | 04 |
| 30 – 39 | 01 |

Q. No. 4. Distinguish between positive and negative correlation with the help of scatter diagram. Marks : 16

Q. No. 5. Compute the regression equations for the following data : Marks : 16

| | | | | | | |
|---|---|---|---|---|---|---|
| X : | 2 | 4 | 5 | 6 | 8 | 11 |
| Y : | 18 | 12 | 10 | 08 | 07 | 05 |

Q. No. 6. Using the following data, compute Fisher's ideal price index number and show it satisfies TRT and FRT. Marks : 16

| Item | Base Year | | Current Year | |
|---|---|---|---|---|
| | Price | Exp | Price | Exp |
| A | 08 | 48 | 12 | 48 |
| B | 10 | 80 | 12 | 96 |
| C | 14 | 56 | 18 | 90 |
| D | 04 | 24 | 02 | 20 |
| E | 10 | 100 | 10 | 80 |

Q. No. 7. Define correlation. Discuss its significance. Marks : 16

Q. No. 8. Write short note on **any two** of the following : Marks : 2×8=16

a) Tabulation

b) Skewness

c) Secondary data.

Q. No. 9. Solve **any two** of the following problems : Marks : 2×10=20

a) Draft a blank table showing the distribution of students of university according to

i) Sex;

ii) Faculties : Arts, Science, Commerce

iii) Four Year : 1981, 1984, 1985 and 1986

iv) Age group : Below 18 years, 18-21 years and 22 years and above.

b) Find Karl Pearson's coefficient of skewness for the following data :

| Age | Students |
|---|---|
| 10 – 12 | 04 |
| 12 – 14 | 10 |
| 14 – 16 | 16 |
| 16 – 18 | 30 |
| 18 – 20 | 20 |
| 20 – 22 | 14 |
| 22 – 24 | 06 |

c) Find the coefficient of correlation between X and Y from the following data :

| | | | | | | |
|---|---|---|---|---|---|---|
| X : | 10 | 14 | 15 | 28 | 35 | 48 |
| Y : | 74 | 61 | 50 | 54 | 43 | 46 |

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# Fourth Semester 5 Year B.B.A. LL.B. (New/Old) Examination, December 2018

## BUSINESS STATISTICS

Duration : 3 Hours

Max. Marks : 100

**Instructions** : 1. Answer Q. No. **9** and **any five** of the remaining questions.

2. Q. No. **9** carries **20** marks and the **remaining** questions carry **16** marks **each**.

3. Answers should be written in **English**.

4. **Use** only simple calculator.

Q. No. 1. Obtain arithmetic mean, mode and quartiles for the following data : Marks : 16

| Variable | Frequency |
|---|---|
| 0 –10 | 32 |
| 10 – 20 | 65 |
| 20 – 30 | 100 |
| 30 – 40 | 184 |
| 40 – 50 | 288 |
| 50 – 60 | 167 |
| 60 – 70 | 98 |
| 70 – 80 | 46 |
| 80 – 90 | 20 |

P.T.O.

Q. No. 2. Distribution of workers according to weekly wages paid by two small scale industries A and B is given below. Which industry pays more uniform wages ? Marks : 16

| Weekly wages in Rs. | No. of Workers in industry A | B |
|---|---|---|
| 20 – 30 | 10 | 5 |
| 30 – 40 | 15 | 15 |
| 40 – 50 | 20 | 10 |
| 50 – 60 | 40 | 50 |
| 60 – 70 | 15 | 10 |
| 70 – 80 | 10 | 10 |
| 80 – 90 | 7 | 6 |
| 90 – 100 | 3 | 4 |

Q. No. 3. Ten competitors in a beauty contest are ranked by three judges in the following order : Marks : 16

| 1st Judge | 2nd Judge | 3rd Judge |
|---|---|---|
| 1 | 3 | 6 |
| 6 | 5 | 4 |
| 5 | 8 | 9 |
| 10 | 4 | 8 |
| 3 | 7 | 1 |
| 2 | 10 | 2 |
| 4 | 2 | 3 |
| 9 | 1 | 10 |
| 7 | 6 | 5 |
| 8 | 9 | 7 |

Use the rank correlation co-efficient to determine which pair of judges has nearest approach to common tastes in beauty.

Q. No. 4. For the following data construct Fisher's ideal index number. And also prove that Fisher's ideal formula satisfy Marks : 16

1) Time reversal test

2) Factor reversal test.

| Commodities | Price | | Quantity | |
|---|---|---|---|---|
| | Base Year | Current Year | Base Year | Current Year |
| A | 175 | 300 | 2 | 3 |
| B | 210 | 230 | 3 | 4 |
| C | 475 | 525 | 1 | 2 |
| D | 100 | 120 | 4 | 4 |

Q. No. 5. Explain the classification and tabulation of a statistical data. What are the important rules of tabulation of statistical data ? Marks : 16

Q. No. 6. What is an index number ? Why index numbers are called economic barometers ? Marks : 16

Q. No. 7. What is graphical representation of data ? Explain the various types of diagrams. Marks : 16

Q. No. 8. Write a short note on **any two** of the following : Marks : 2×8=16

a) Class interval and class frequency

b) Regression

c) Range.

Q. No. 9. Answer **any two** of the following : Marks : 10×2=20

a) The heights (in cm) of group of father's and sons are given below.

| Height of fathers | Height of sons |
|---|---|
| 158 | 163 |
| 160 | 158 |
| 163 | 167 |
| 165 | 170 |
| 167 | 160 |
| 170 | 180 |
| 167 | 170 |
| 172 | 175 |
| 177 | 172 |
| 111 | 175 |

Find the lines of regression and estimate the height of the son when the height of the father is 164 cms.

b) Calculate co-efficient of correlation from the following data by Karl Pearson's method.

| x | y |
|---|---|
| 3 | – 1 |
| 6 | 5 |
| 2 | 1 |
| 0 | 1 |
| – 1 | 3 |
| 4 | 0 |
| 3 | 2 |

c) Find Karl Pearson's coefficient of skewness.

| x : | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
|---|---|---|---|---|---|---|---|
| f : | 8 | 11 | 19 | 25 | 21 | 10 | 06 |

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# IV Semester 5 Year B.B.A.,LL.B. Examination, June/July 2018
## BUSINESS STATISTICS
## (Old and New Batch)

Duration : 3 Hours Max. Marks : 100

**Instructions :** 1. Answer Q. No. **9** and **any five** of the remaining questions.

2. Q. No. **9** carries **20** marks and the **remaining** questions carry **16** marks **each**.

3. Answers should be written in **English** completely.

4. **Use** simple calculator.

Q. No. 1. Define classification. Explain different types of classification. Marks : 16

Q. No. 2. Calculate mean, median and mode for the following data : Marks : 16

| Classes | Frequency |
|---|---|
| 129.5 – 134.5 | 05 |
| 134.5 – 139.5 | 14 |
| 139.5 – 144.5 | 28 |
| 144.5 – 149.5 | 24 |
| 149.5 – 154.5 | 18 |
| 154.5 – 159.5 | 10 |
| 159.5 – 164.5 | 01 |

Q. No. 3. Explain the concept of Regression and its uses. Marks : 16

P.T.O.

Q. No. 4. During the 10 weeks of a session the marks scored by two candidates Vishal and Rakesh taking the computer programme course are given below : Marks : 16

| Vishal | Rakesh |
|---|---|
| 58 | 87 |
| 59 | 89 |
| 60 | 78 |
| 54 | 71 |
| 65 | 73 |
| 66 | 84 |
| 52 | 65 |
| 75 | 66 |
| 69 | 56 |
| 52 | 46 |

a) Who is better scorer ?
b) Who is more consistent ?

Q. No. 5. From the following data, prove Fishers ideal index number satisfies TRT and FRT. Marks : 16

| | Base Year | | Current Year | |
|---|---|---|---|---|
| Items | Price | Expenses | Price | Expenses |
| A | 8 | 480 | 80 | 960 |
| B | 4 | 400 | 120 | 1080 |
| C | 20 | 600 | 40 | 1200 |
| D | 16 | 480 | 50 | 1200 |
| E | 12 | 480 | 50 | 1000 |
| F | 15 | 750 | 60 | 1080 |

Q. No. 6. Define dispersion. Explain various measures of dispersion. Marks : 16

Q. No. 7. Calculate coefficient of correlation from the following data by Karl Pearson's Method. Marks : 16

| X | Y |
|---|---|
| 3 | –1 |
| 6 | 5 |
| 2 | 1 |
| 0 | 1 |
| –1 | 3 |
| 4 | 0 |
| 3 | 2 |

Q. No. 8. Write short note on **any two** of the following : Marks : 2×8=16

a) Range

b) Skewness

c) Rank Correlation.

Q. No. 9. Solve **any two** of the following problems : Marks : 2×10=20

a) Calculate the mean and standard deviation from the following data :

| Value | Frequency |
|---|---|
| 30 – 40 | 1 |
| 40 – 50 | 4 |
| 50 – 60 | 14 |
| 60 – 70 | 20 |
| 70 – 80 | 22 |
| 80 – 90 | 12 |
| 90 – 100 | 2 |

b) Draw a blank table showing the distribution of students of university according to :

→ Gender

→ Faculties – Maths, Science, History and English

→ Four years – 2001, 2005, 2007 and 2011

→ Age group – Below 18 years, 18 – 20 year and 20 years and above.

c) Draw Histogram and find mode for the following data :

| Classes | Frequency |
|---|---|
| 10 – 20 | 5 |
| 20 – 30 | 22 |
| 30 – 40 | 35 |
| 40 – 50 | 25 |
| 50 – 60 | 15 |