

QP CODE 2155515101

Reg.No

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DMI-ST. EUGENE UNIVERSITY

ZAMBIA

DEGREE EXAMINATION – JUNE 2023

Semester: V

551/552/252MA51 BUSINESS STATISTICS

Time: 3:00 Hours

Max. Marks: 100

Answer any FIVE Questions (5 x 20 = 100 Marks)

1. a) What are the merits of arithmetic average? (5 Marks)
- b) What are the merits of Median? (5 Marks)
- c) The following is the monthly income of ten families: K : 280, 180, 200, 100, 120, 130, 170, 160, 220, 300 . Calculate the mean. (5 Marks)
- d) Find out the median form the following data: Size of Items: 22, 08, 18, 15, 09, 13, 17, 12, 15, 16 (5 Marks)

2. a) Compute the Quartile Deviation from the following frequency distribution:

| | | | | | | | | | |
|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Size | 04-08 | 08-12 | 12-16 | 16-20 | 20-24 | 24-28 | 28-32 | 32-36 | 36-40 |
| Frequency | 06 | 10 | 18 | 30 | 15 | 12 | 10 | 06 | 02 |

(10 Marks)

- b) Calculate Standard Deviation and its variation.

| | | | | | | |
|-----------|-------|-------|-------|-------|-------|-------|
| Groups | 00-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
| Frequency | 3 | 6 | 9 | 13 | 08 | 04 |

(10 Marks)

3. a) You are required to calculate the Standard Deviation and Karl Person’s Coefficient of Skewness through the SD from the following series:

| | | | | | | | | |
|---------------|-----|-----|-----|-----|-----|-----|------|------|
| Wages (K) | 4.5 | 5.5 | 6.5 | 7.5 | 8.5 | 9.5 | 10.5 | 11.5 |
| No of Persons | 35 | 40 | 48 | 100 | 125 | 87 | 43 | 22 |

(10 Marks)

- b) Find out the coefficient of Skewness of the two groups given and point out which distribution in more skew?

| Marks | Group A | Group B |
|-------|---------|---------|
| 55-58 | 12 | 20 |
| 58-61 | 17 | 22 |
| 61-64 | 23 | 25 |
| 64-67 | 18 | 13 |
| 67-70 | 11 | 07 |

(10 Marks)

4. a) Apply short-cut method in computing the coefficient of Correlation from the data given in illustration as the calculations by direct method is difficult enough. (10 Marks)

| | | | | | | | | | |
|----------|-----|-----|------|------|------|------|------|------|------|
| X | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 |
| Y | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 |

- b) Ten competitors in a beauty contest are ranked by three judges in the following order:

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

(10 Marks)

5. a) Calculate the relatives of prices assuming the 1980 prices as the base. (10 Marks)

| | | | | | | |
|-------------------|------|------|------|------|------|------|
| Years | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
| Prices (K) | 80 | 110 | 125 | 140 | 150 | 160 |

- b) Find the relatives (based on average prices) of prices of various years from the following information: (10 Marks)

| | | | | | | |
|--------------------|------|------|------|------|------|------|
| Years | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 |
| Prices in K | 7 | 10 | 9 | 12 | 14 | 8 |

6. a) What are the merits and demerits of Quartile Deviation? (5 Marks)

- b) What are the merits and demerits of Mean Deviation? (5 Marks)

- c) What are the merits of Standard Deviation? (5 Marks)

- d) What do you understand by Skewness, What is the test of Skewness? Explain different measures of Skewness. (5 Marks)

7. a) Find out from the following data the Quartiles, Bowley's Skewness and Quartiles Coefficient of Skewness. **(10 Marks)**

| | | | | | | | | | | | |
|-------|----|----|----|----|----|----|----|----|----|----|----|
| Marks | 90 | 50 | 52 | 86 | 87 | 76 | 80 | 85 | 58 | 61 | 65 |
|-------|----|----|----|----|----|----|----|----|----|----|----|

- b) Calculate Bowley's Skewness (Median) from the data given below.

(10 Marks)

| | | | | | | | |
|-----|----|----|----|----|----|----|---|
| X | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| f | 20 | 22 | 50 | 54 | 30 | 18 | 5 |