

Mid-West University  
**Examinations Management Office**  
Final Examinations -2078

Bachelor level/ B.Sc/ 1<sup>st</sup> Semester  
Time: 3hrs

Full Marks : 60  
Pass Marks.: 30

**Subject : Descriptive Statistics/Fundamental of Statistics ( STAT415/315)**

*Candidates are required to give their answer in their own words as far as practicable. The figures in the margin indicate full marks.*

**Group-A**

**Long question**

**[4x6=24]**

1. Write down the concept of correlation coefficient. Show that value of correlation coefficient lies between  $\pm 1$ . **[2+4]**
2. What do you mean by skewness and kurtosis of a distribution? Show that the Pearson's Beta coefficients satisfies the inequality  $\beta_2 - \beta_1 - 1 \geq 0$ . **[1+5]**
3. Distinguish between absolute and relative measure of dispersion. Show that the variance of 'n' natural numbers is  $\frac{n^2 - 1}{12}$ . **[2+4]**
4. From the following grouped frequency distribution calculate Pearson's coefficient of skewness

C.I	0-10	10-20	20-30	30-40	40-50	50-60
F	13	15	18	23	19	12

**OR**

Calculate the mean deviation from mean, median and mode for the following grouped frequency distribution.

Class interval	0-4	4-8	8-12	12-16	16-20
Frequency	4	6	8	5	2

**Group-B**

**Short question**

**[6x4=24]**

5. Explain the importance of statistics in business and industry.

**OR**

Discuss on graphical and diagrammatic representation of data

6. A student obtained the mean and standard deviation of 100 observations as 40 and 5.1 respectively. It was later found that one observation was wrongly copied as 40, the correct figure being 50. Find the correct mean and standard deviation.
7. Show that the weighted A.M. of the first 'n' natural numbers whose weights are equal to the corresponding numbers is equal to  $\frac{2n+1}{3}$
8. What is five number summary? Discuss on box and whisker plot.
9. The birth weights (kg) of 30 children were recorded as follows:

2.0	2.1	2.3	3.0	3.1	2.7	2.9	3.5	3.1	3.7
4.0	2.3	3.5	4.2	3.7	3.2	2.7	2.6	2.7	3.8
3.1	3.0	2.6	2.8	2.9	3.6	4.1	3.9	2.8	2.2

Prepare a grouped frequency distribution for above data.

10. Prove that for any discrete distribution, standard deviation is not less than mean deviation from mean.

**Group-C**

**Very Short question**

**[6x2=12]**

11. What is primary data? Point out the source of primary data.
12. Give an example of situations that different average is appropriate.
13. Define moments. What is its uses?
14. Find lower and upper quartile from the given data.  
20, 18, 15, 16, 19, 20, 22, 25
15. Write down the properties of correlation coefficient.
16. Calculate the G.M of the following distribution.

Year	1	2	3	4
Growth factor	1.07	1.08	1.10	1.18

17. Prove that  $A.M \geq G.M. \geq H.M.$  for sample  $n = 2$
18. What are the roles of measures of dispersion in descriptive statistics?

**THE END**