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Daffodil International University

Department of Computer Science and Engineering
Faculty of Science & Information Technology
Mid Term Examination, Spring-2026
Course Code: STA 227, Course Title: Statistics and probability

Time: 1.5 Hour **Marks: 25**

Total Marks-25

1.	a)	what is Variable? Give some examples.	[2]
	b)	Write down types of variables. And describe the types of variables?	[3]
2.	a)	what is the central tendency?	[2]
	b)	Write types of measurement of central tendency?	[3]
3.	a)	What is the Arithmetic mean?	[2]
	b)	write down the advantage and disadvantage of Arithmetic mean?	[3]
4	a)	The following data are direct solar intensity measurements (watts/m²) on different days at a location in southern Spain: 120,145,170,185 and 195 Write down the sample standard deviation equation and calculate the sample mean and sample standard deviation.	[2]
	b)	Write down the Population standard deviation equation and calculate the population standard deviation.	[3]
5	a)	The following data set showed the category of performance-oriented mobility assessment (POMA) level of respondents;	[2]

POMA classification	Frequency
No Risk (16-20)	25
Minimal Risk (21-25)	35
Medium Risk (26-30) → 26 - 30	61
High Risk (31-35)	120

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		Calculate relative and Cumulative frequency of this group data.	
	b)	Calculate relative and median of this group data.	3

Formula

Measures of Central Tendency

Mean

A.M= $\bar{x}=\frac{x_1+x_2+\cdots+x_n}{n}$

W.M= $\bar{x}=\frac{w_1x_1+w_2x_2+\cdots+w_nx_n}{w_1+w_2+\cdots+w_n}$

G.M=$\bar{x}=((x_1.x_2.x_3\ldots x_n))^{1/n}$

H.M=$\frac{n}{\frac{1}{x1}+\frac{1}{x2}+\cdots+\frac{1}{xn}}$

Measures of Location

Quartile

$Q_i=\frac{i\times n}{4}$

Deciles

$D_i=\frac{i\times n}{10}$

Percentile

$P_i=\frac{i\times n}{}$

Measure of Dispersion

Range= X_{max} - X_{min}

Mean Deviation, M.D =$\frac{\sum_{i=1}^{n}|x_i-\bar{x}|}{n}$

Population variance

$\sigma^2=\frac{\sum_{i=1}^{N}(X_i-\mu)^2}{N}$

Population standard deviation, $\sqrt{\sigma^2}$

Sample variance

$s^2=\frac{\sum_{i=1}^{N}(X_i-\bar{X})^2}{n-1}$

Sample standard deviation, $\sqrt{s^2}$

Coefficient of variation for

Hypothesis testing

Z test statistics

$Z=\frac{\bar{x}-\mu}{\frac{\sigma}{\sqrt{n}}}$

t test statistics

$\frac{\bar{X}-\mu}{}$

Shape of the distribution

Coefficient of Skewness, Sk=$\frac{3\times(Mean-Median)}{Standard\ deviation}$

Kurtosis $\beta_2=\frac{\mu_4}{\mu_2^2}$

!!! BEST TEACHER DIU !!!