MMW Reviewer

A. Set Operations:

* Sets are groups of things.
* Union: Combines sets, no repeats.
* Intersection: Common elements in sets.
* Difference: Elements in one set but not the other.

B. Propositions:

* Statements that are true or false.
* Simple or compound.
* Connectives like "and," "or," and "not."

C. The Negation:

* Flips the truth value of a statement.
* Changes true to false and vice versa.

D. The Conjunction:

* "And" operation.
* True only if both statements are true.

E. The Disjunction:

* "Or" operation.
* True if at least one statement is true.

F. The Conditional:

* "If-then" statement.
* False only if the hypothesis is true and the conclusion is false.

G. The Biconditional:

* "If and only if" statement.
* True if both statements have the same truth value.

H. Predicate Logic:

* Uses variables to express relationships.
* Quantifies statements about variables.

I. Quantifiers:

* Universal quantifier (∀): Statement holds for all elements.
* Existential quantifier (∃): Statement holds for at least one element.
* **Measures of Central Tendency:**
  + Mean: Average value of data.
  + Median: Middle value when data is arranged.
  + Mode: Most frequently occurring value.
  + Mean for Grouped Data: Average for grouped values.
  + Median of Grouped Data: Middle value for grouped data.
  + Mode of Grouped Data: Most common value for grouped data.
* **Measures of Variation:**
  + Range: Difference between the highest and lowest values.
  + Average Deviation: Average of the differences from the mean.
  + Variance and Standard Deviation for Ungrouped Data: Measure of data spread.
  + Variance and Standard Deviation of Grouped Data: Spread for grouped data.

**Review of Inferential Statistics:**

Inferential statistics make predictions based on a sample of data. Key topics include:

* **Testing of Statistical Hypothesis:**
  + One-tailed and Two-tailed Tests: Directional vs. non-directional hypotheses.
  + Fundamentals of Hypothesis Testing: Basics of making and testing hypotheses.
  + Testing a Hypothesized Value of the Mean: Checking if a sample mean is different.
* **Correlation:**
  + Types of Correlation: Positive, negative, or no correlation.
  + Correlation coefficient (r) Formula: Quantifies strength and direction of correlation.
* **Linear Regression:**
  + Predicting one variable based on another.
  + Formula predicts the relationship between variables.