University of Mumbai

M.Sc in Information Technology
Revised Syllabus 2019-2020

PSIT101 & PSIT1P1 - Research in Computing

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UNIT IV - **MEASUREMENT CONCEPTS, SAMPLING AND FIELD WORK**

BASED ON WILLIAM G. ZIKMUND

Measurements

Concept : A generalized idea that represents something of meaning.

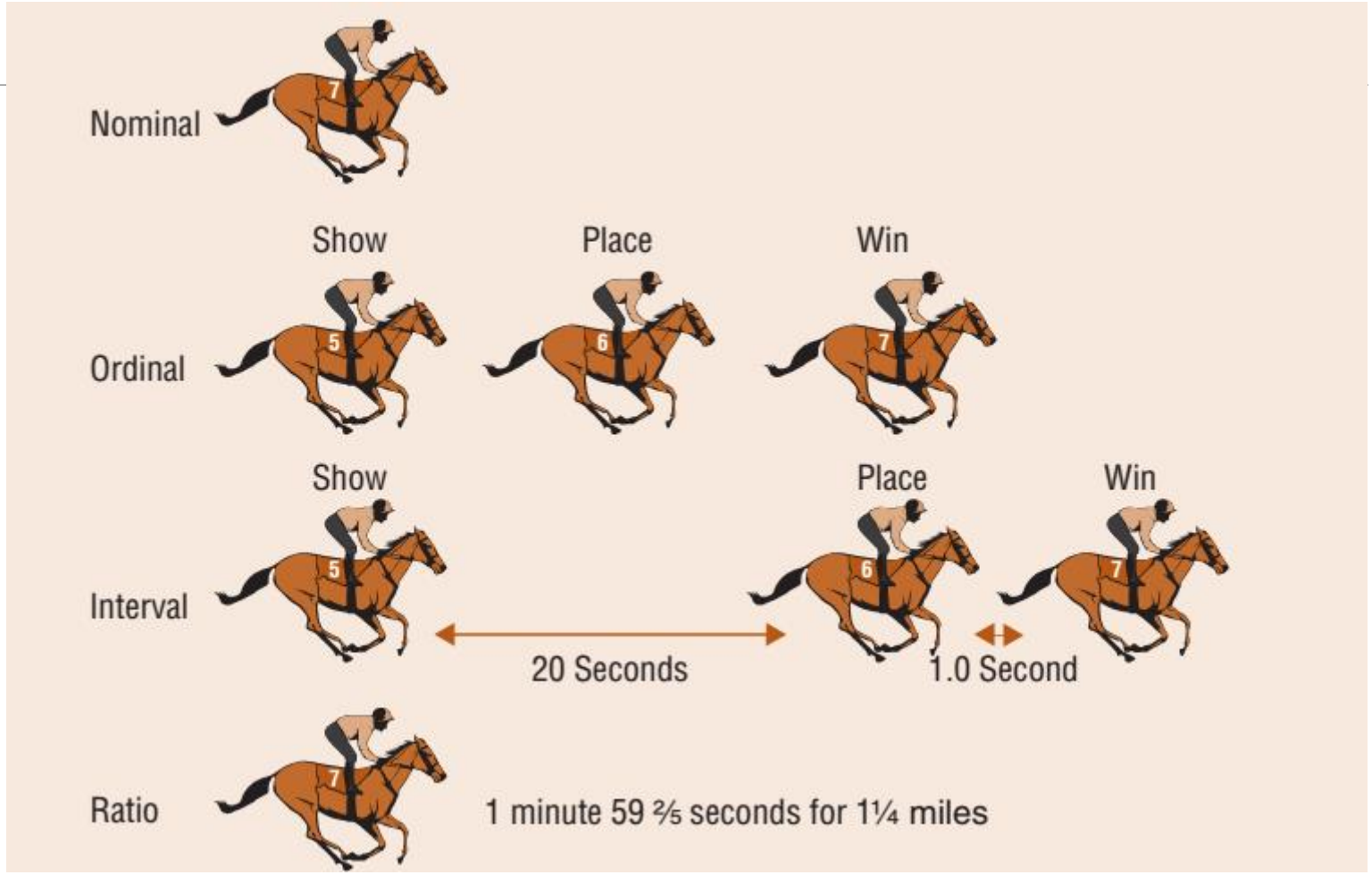
Operationalization : The process of identifying scales that correspond to variance in a concept to be involved in a research process.

Scales : A device providing a range of values that correspond to different values in a concept being measured.

correspondence rules : Indicate the way that a certain value on a scale corresponds to some true value of a concept.

Variables and Constructs

Levels of Scale



Mathematical and Statistical Analysis of Scales

discrete measures : Measures that take on only one of a finite number of values

continuous measures : Measures that reflect the intensity of a concept by assigning values that can take on any value along some scale range.

index measure : An index assigns a value based on how much of the concept being measured is associated with an observation. Indexes often are formed by putting several variables together.

composite measures : Assign a value to an observation based on a mathematical derivation of multiple variables

Computing Scale Values

summated scale : A scale created by simply summing (adding together) the response to each item making up the composite measure

reverse coding : Means that the value assigned for a response is treated oppositely from the other items

Three Criteria for Good Measurement

Reliability

- Internal Consistency

- split-half method : A method for assessing internal consistency by checking the results of one-half of a set of scaled items against the results from the other half.
- coefficient alpha (α) : The most commonly applied estimate of a multiple-item scale's reliability. It represents the average of all possible split-half reliabilities for a construct

Test-Retest Reliability

Validity

- Face validity
- Content validity
- Criterion validity
- Convergent validity
- Discriminant validity

Sensitivity : A measurement instrument's ability to accurately measure variability in stimuli or responses.