UNIT-V
STANDARDIZED AND NON-STANDARDIZED TESTS:
* Meaning, characteristics, objectivity, validity, reliability, usability, norms, construction of Tests-

INTRODUCTION:
Education aims at the all-round development of a student not merely imparting knowledge to him. Evaluation is the process of judging the value or worth of an individual’s achievements or characteristics. It is the judging of the goals attained by the educational system. In order to evaluate the student knowledge teacher uses different types of tests.

STANDARDISED TESTS:
These are tests in which uniformity of procedure in scoring, administering and interpreting the results. [Any examination in which the same test is given in the same manner to all students.]
There are two sides of standardized tests
1. It is considered as an economical, reliable & valid assessment in determining whether some one could enter, continue or exit institutions such as school, university, business & government.
   The tests usually use multiple-choice format tests.
2. According to psychometrics such test covers only a narrow band of specialized intelligence.
   Examples of standardized tests: TOEFL (Test Of English As Foreign Language)
   TOEIC (Test Of English Language Testing System)
   GMAT (Graduate Management Admission System)

NON-STANDARDISED TESTS/ACHIEVEMENT TEST/TEACHER MADE TESTS:
DEFINITION: A systematic procedure for determining the amount a student has learned through instruction. (Groundlund)
Popham believes that,” the achievement tests focus upon an examinees’s attainment at a given point of time”.

CLASSIFICATION OF ACHIEVEMENT TESTS:

ACHIEVEMENT TESTS

Written tests. Oral.

Practical/performance. Objective tests.

Essay-type.
Extended response type
Restricted response type
Selection type
Supply type

Extended response (long essay) Restricted response type

a) Short essay a) True false a) Completion
b) Short answer b) Multiple choice
b) Multiple choice
c) Very short answer c) Matching type
c) Matching type
d) Extended matching type
e) Multiple response items
d) Extended matching type
e) Multiple response items
f) Assertion reason item
f) Assertion reason item
g) Interpretive item
g) Interpretive item

VALIDITY
The accuracy with which a test measures whatever is intended/supposed to measure. The efficiency with which a test measures what it attempts to measure. The accuracy with which test reliability measures what is relevant.

TYPES OF VALIDITY
1. **Content validity**: all major aspects of the content area must be adequately covered by the test items and in correct positions.
2. **Predictive validity**: the extent to which a test can predict the future performance of the students.
3. **Constructive validity**: it refers to the extent to which a test reflects and seems to measure a hypothesized trait.
4. **Concurrent validity**: the relationship between scores on measuring tool and criteria available at the same time in the present situation.
5. **Face validity**: when one looks at the test he thinks of the extent to which the test seems logically related to what is being tested.

FACTORS AFFECTING VALIDITY
- Unclear direction results to low validity
- If reading vocabulary is poor, the students fail to reply to the test item.
- Difficult sentences are difficult to understand, unnecessarily confused.
- Use of inappropriate items will lead to dis-organizations of matter leads to lower validity.
- Inadequate weightage to sub-topics objectives forms a question of a test.

RELIABILITY
The degree of accuracy, consistency with which an exam, test measures, what it seeks to measure a given variable. ‘The degree of consistency among test scores.’

A test score is called reliable, when we have reasons for believing it to be stable and trustworthy.
METHODS
Reliability is expressed by a coefficient of correlation is called as the reliability coefficient.

APPROACHES
• Test re-test method.
• Alternative or parallel forms method.
• Split-half method.
• Rational equivalence method.

FACTORS INFLUENCING RELIABILITY
• Data collecting method.
• Internal between testing occasions.
• Test length.
• Speed of the method.
• Difficulty of the items.
• Group homogeneity.
• Objectivity of scoring is more reliable than subjective scoring.
• Optional questions.

OBJECTIVITY
A test is objective, when the scorer’s personal judgment does not affect the scoring. It eliminates fixed opinion or judgments of the person who scores it.
• The objectivity is a prerequisite of reliability and validity.
• The objectivity of a test can be increased by
  o Using more objectivity type items
  o Preparing scoring key
  o Two independent examiners evaluating the test and using the average score of the two as final score.

USABILITY
The overall simplicity of use of a test for both constructor and for learner. It is an important criterion used for assessing the value of a test. Practicability depends upon various factors like ease of administrability, scoring, interpretation and economy.

ESSAY TYPE QUESTIONS:
Definition:
Gilbert Sax believes that “essay test is a test containing questions requiring the student to respond in writing.
Essay tests emphasise recall rather than recognition of the correct alternative.
Essay tests may require relatively brief responses or extended responses.
An essay test presents one or more questions or other tasks that require extended written responses from the persons being tested - Robert LE and David AF.
In essay type question, the student prepares his own answers. It evaluates the knowledge areas alone. Handwriting, spelling, neatness, organization, ways of expressing ideas may be considered in scoring the items. The element of subjectivity can be reduced by careful preparation of the questions for the selected content areas to be tested in advance.

**Characteristic of essay question:**
- Freedom of response.
- Free to select, relate and present ideas in their own words.
- Measure of complex achievement.
- Can measure learning outcomes concerned with the abilities to select, organise, integrate, relate, and evaluate ideas.
- No single answer can be considered throughout and correct.
- The answers vary in their degree of equality or corrections.

**Types of Essay Questions:**
Based on the amount of freedom given to a student to organise his ideas and write his answer. The essay questions are divided into two. They are:

**THE RESTRICTED RESPONSE TYPE**

**THE EXTENDED RESPONSE TYPE**

1. **Restricted response questions:**
   - The restricted response usually limits both the content and the response.
   - The content is usually restricted by the topic to be discussed.
   - Limitations on the form of response are generally indicated in the question.
   - Example: State the main difference between kwashiorkor and marasmus. Describe two health problems arising out of poor environmental sanitation.
   - Another way of restricting the response is by basing the questions on specific problems.

**Advantages:**
- Because the restricted response is more structured, it is useful for measuring the learning outcomes requiring interpretation and application of data in a specific area.

**Disadvantages:**
- Less valuable in measuring the outcomes emphasising integration, organisation and originality.
- Student will have less scope, because he is told specifically the context in which his answer is to be made.

2. **Extended response questions:**
The extended response question allows pupils to select any factual information that they think is pertinent, to organize the answer in accordance with their best judgement and to integrate and evaluate ideas as they deem to appropriate. No restriction is placed on the student as the points he will discuss and the type of organisation he will use. 

Example: Role of nurse in the health care team.

Describe the contributions of Florence nightingale towards the development of nursing.

**Advantages:**
- The ability to select, organise, integrate and evaluate ideas are made evident.

**Disadvantages:**
- It is inefficient in measuring more specific learning outcomes.
- Scoring difficulties makes it’s usage restricted as a measuring instrument.

**Principles for Preparing Essay Type Test**
- Do not give too many lengthy questions.
- Avoid phrases, e.g. 'Discuss briefly'.
- Questions should be well-structured with specific purpose or topic at a time.
- Words should be simple, clear, unambiguous and carefully selected.
- Do not allow too many choices.
- According to the level of students' difficulty and complexity items has to be selected.

**Advantages**
- It measures complex learning outcomes that cannot be measured by other means.
- It emphasises on the integration and application of thinking and problem solving skills.
- It can improve writing skills.
- There is an ease with it’s construction.
- Tests the ability to communicate in writing; depth of knowledge and understanding.
- The student can have freedom to communicate, her ability for independent thinking.
- The student can demonstrate her ability to organize ideas and express them effectively in a logical and coherent fashion.

**Disadvantages**
- Unreliability of scoring
- Lack of objectivity.
- Provides little useful feedback.
- Takes long-time to score.
- Limited content sampling.
- Subjectivity of scoring.

- Essay type possesses relatively low validity and reliability because of the factors like:
1. Contaminated by extraneous factors like spelling, good handwriting, coloured writing, neatness, grammar, and length of the answer.
2. Biased judgment by previous impressions.
3. Good verbal ability even in the absence of relevant points.
4. Mood of examiners.
5. First impression.
6. Improper comparison of answer, of different students (Bright and dull).
7. Ambiguous wording of questions may be misinterpreted results in guessing and bluffing on the part of the students.
8. Laborious process both for corrector and for the student.
9. Only competent teachers can assess.

**Suggestions for the essay test:**

**Construction of essay questions:**
1. Use essay questions to measure complex learning outcomes only.
2. Relate the questions as directly as possible to the learning outcomes being measured.
3. Formulate questions that present a clear task to be performed.
4. Do not permit a choice of questions unless the learning outcome requires it.
5. Provide ample time for answering and suggest a time limit in each question.

Essay questions can be used to measure attainment of a variety of objectives.

*Stecklein (1955)* has **listed 14 types of abilities** that can be measured by essay items:
1. Comparisons between two or more things.
2. The development and defence of an opinion
3. Questions of cause and effect
4. Explanations of meanings
5. Summarizing of information in a designated area
6. Analysis
7. Knowledge of relationships
8. Illustrations of rules, principles, procedures, and applications
9. Applications of rules, laws, and principles to new situations
10. Criticisms of the adequacy, relevance, or correctness of a concept, idea, or information
11. Formulation of new questions and problems
12. Reorganization of facts
13. Discriminations between objects, concepts, or events
14. Inferential thinking

**Suggestions for scoring an essay answer:**
1. Prepare an outline of the expected answer in advance
2. Use the scoring method which is more appropriate (point method or the rating method)
3. Decide how to handle factors that are irrelevant.
4. Evaluate all answers to one question before going to the next one.
5. Evaluate the answers without looking at the student’s name.
6. If especially important decisions are to be based on the results, obtain 2 or more independent ratings.

**SHORT ANSWER QUESTIONS:**
Short-answer questions are “constructed-response,” or open-ended questions that require students to create an answer. Short-answer items typically require responses of one word to a few sentences. “Fill in the blank” and “completion” questions are examples of short-answer question types. Most appropriate for questions that require student recall over recognition.

**Principles of preparing short answer type questions:**
- Use action oriented precise verbs.
- Each item should deal with important content area.
- Question can be as long as possible, but answer should be short.
- Use precise, simple and accurate language in relation to the subject matter area.
- Provide the necessary space for answers below each question asked.

**Advantages:**
- Short-answer questions assess unassisted recall of information, rather than recognition.
- Compared to essay questions, they are relatively easy to write.
- It is suitable for measuring knowledge of terminology, knowledge of specific facts, knowledge of principles, knowledge of method or procedure and simple interpretations of data.

**Disadvantages:**
- Short-answer items are only suitable for questions that can be answered with short responses.
- Additionally, because students are free to answer any way they choose, short-answer questions can lead to difficulties in scoring if the question is not worded carefully.
- It's important when writing short-answer questions that the desired student response is clear.

**Constructing short answer questions:**
- Word the item so that the required answer is both brief and specific.
- Do not take statements directly from text books.
- Blanks for answers should be equal in length and in a column to the right of the question.
- Do not include too many blanks.

**Bloom’s Levels:**
- Knowledge
- Comprehension
- Application

**Examples:**
The thin membrane that separates the inner ear from the external ear is commonly called the ____________.
This question is very clear in its desired response. In addition, it assesses recall of knowledge-level processing.
Example of a poorly executed short-answer question:
• Evaluation designed to assess a program as it develops is _____________________.
This question does a poor job of specifying exactly what information it is looking for. It’s conceivable that students could create any number of answers to this question.
Changing the question to “The type of evaluation designed to assess a program as it develops is called ________” creates a more accurate question, clearly asking students to respond with the name of an evaluation type.

MULTIPLE CHOICE QUESTIONS:
Multiple choice items not only measures the simple learning outcomes but also the complex ones i.e. knowledge, understanding and application areas. Multiple-choice items present a question and ask students to choose from a list of possible answers. Most multiple-choice questions feature one correct answer, and two to four "distractor" choices that are not correct. Questions can take the form of incomplete sentences, statements, or complex scenarios.

Characteristics of multiple choice questions:
✓ Consists of a problem and a list of suggested solutions.
✓ Stated as a direct question or an incomplete statement.
   The direct question or the incomplete statement is called the **STEM OF THE ITEM**
✓ Suggested solutions may include words, numbers, symbols or phrases.
   The suggested solutions are called **ALTERNATIVES/CHOICES/OPTIONS**
   The correct alternative in each item is called **THE ANSWER/KEY**
   The remaining alternatives are called **DISTRACTORS**

**EXAMPLE:**

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stem
Insulin is secreted by
Thyroid
Pancreas
Hypothalamus
Adrenal cortex

answer
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✓ Relatively free from response set.
✓ Plausible alternative makes the result amenable to diagnosis.
Uses of multiple-choice items:

Measuring knowledge outcomes:
1. Knowledge of terminology.
2. Knowledge of specific facts.
4. Knowledge of methods and procedures.

Measuring outcomes at the understanding and application levels:
1. Ability to identify facts and principles.
2. Ability to interpret cause and effect relationship.
3. Ability to justify methods and procedure.

Construction of multiple choice questions:
- Stem of the item should be meaningful and present a definite problem.
- Stem should include as much of the item as possible and free of irrelevant material.
- Use negatively stated item only when significant.
- Alternatives should be grammatically consistent with stem of item.
- Item should contain only one correct or clearly best answer.
- Items used to measure understanding should contain some novelty, but not too much.
- All distracters should be plausible.
- Verbal associations between the stem and the correct answer should be avoided.
- The relative length of the alternatives should not provide a clue to the answer.
- The correct answer should appear in each of the alternative positions an approximately equal number of items, but in random order.
- Use sparingly special alternatives such as “none of the above” or “all of the above”.
- Do not use multiple choice items when other item types are more appropriate.
- Break any of the above said rules when you have a good reason for doing so.

Advantages:
1. Measures various types of knowledge and complex learning outcomes.
2. Ambiguity and vagueness are avoided because of the alternatives better structure the situation.
3. Students cannot receive credit simply.
4. Greater reliability.
5. Easy to construct.

Disadvantages:
1. More challenging to write.
2. The difficulty of finding a sufficient number of incorrect but plausible distracters.
3. Not well adapted to measure problem solving skill.
4. Limit learning outcome at the verbal level.
5. Multiple-choice assesses recognition over recall.

Rating scales
Rating is the assessment of a person by another person.

Definition
Rating is a term applied to expression of opinion or judgement regarding some situation, object or character. Opinions are usually expressed on a scale of values. -Barr & others

Rate scale records how much or how well it happened. Quantitative & qualitative terms will be used.

Eg: 1. How good was the performance?
   - Excellent
   - Very good
   - Good
   - Average
   - Poor

2. How many times you will discuss with your friend to take decisions?
   - Always
   - Sometimes
   - Never

Types of Rating Scales

1. **Descriptive rating scale**
   Provide for each trait a list of descriptive phrases from which the rater selects the one most applicable item being rated, selected usually by means of a check mark.

2. **Numerical rating scale**
   The rater assigns a code numbers & approximate number to each trait of the person being rated or to the descriptive phases. Arranged in order of the degree, level, intensity or frequency with which they indicate possession or lack of occurrence of each trait.

3. **Graphic rating scale**
   Descriptive phrases closely correspond to the numerical points on the scale printed horizontally at various points from lowest to highest. The rater indicates the performers standing in respect to each trait by placing a check mark at an appropriate point along the line.

4. **Comparative scale**
   The rater has clear knowledge of the activities of the given groups or individuals. The position on the rating scale are explicitly defined in terms of people with known characteristics.

Uses of Rating Scale
To evaluate skills, product outcomes, activities, interests, attitudes & personnel characteristics.

Advantages of Rating Scale
- Easy to administer & to score
- Can be used for a large group of students
- Wide range of application
- Clarity of feedback to students.

Disadvantages of Rating Scale
- Misuse can result in a consequent decrease in objectivity.

Desirable qualities of rating scales
checklist, OSCE/OSPE(Objective structured clinical/practical examination)
• Differential scales, and summated scales, sociometry, anecdotal record, attitude scale, critical incident technique
• Question bank-preparation, validation, moderation by panel, utilization
• Developing a system for maintaining confidentiality

ADVANCED NURSING PRACTICE
UNIT-V BIO-PSYCHO SOCIAL PATHOLOGY
* Pathophysiology and Psychodynamics of disease causation
* Life processes, homeostatic mechanism, biological and psycho-social dynamics in causation of disease, life style
* Common problems: Oxygen insufficiency, fluid and electrolyte imbalance, nutritional problems, hemorrhage] and shock, altered body temperature, unconsciousness, sleep pattern and its disturbances, pain, sensory deprivation.
* Treatment aspects: pharmacological and pre- post operative care aspects,
* Cardio pulmonary resuscitation.
* End of life Care
* Infection prevention (including HIV) and standard safety measures, biomedical waste management.
* Role of nurse- Evidence based nursing practice; Best practices
* Innovations in nursing

NURSING RESEARCH
UNIT-IX ANALYSIS AND INTERPRETATION OF DATA
* Plan for data analysis: quantitative and qualitative
* Preparing data for computer analysis and presentation.
* Statistical analysis
* Interpretation of data
* Conclusion and generalizations
* Summary and discussion

NURSING MANAGEMENT