

# Subject: Educational Assessment and Evaluation


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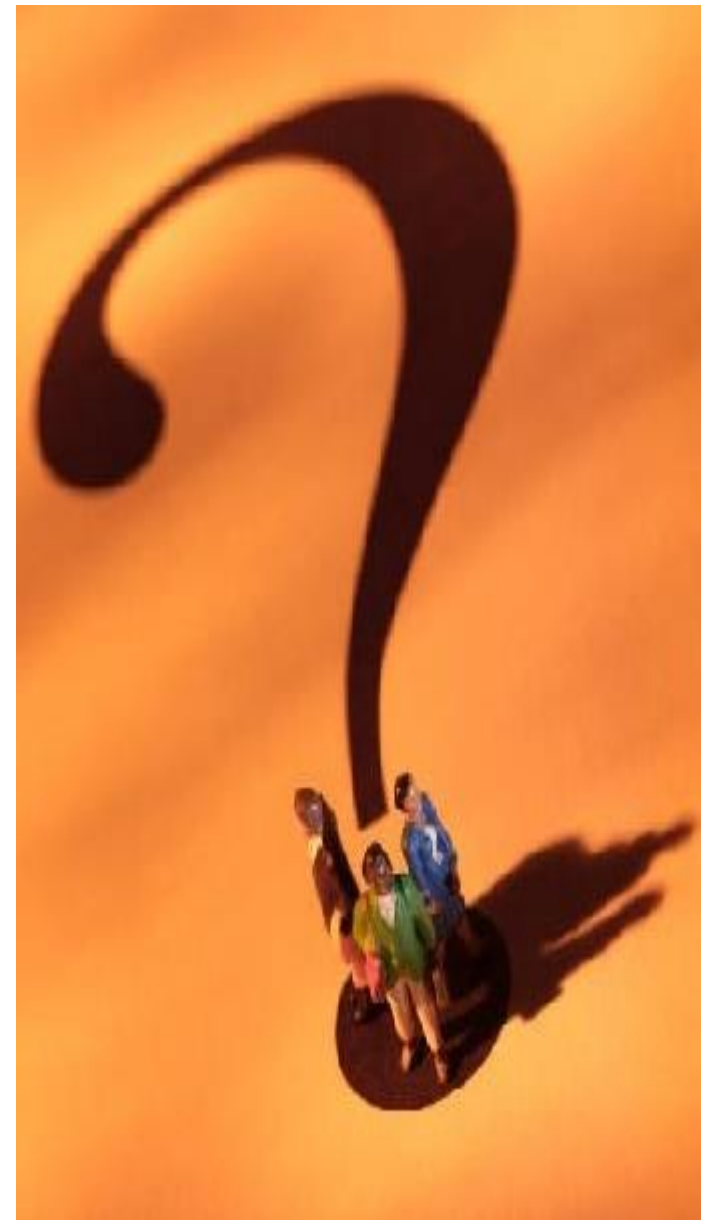
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# **Unit 4: Objective Test Items: Multiple choice Forms**



# Multiple choice Forms

Multiple choice is a form of assessment in which respondents are asked to select the best possible answer (or answers) out of the choices from a list.

The multiple choice format is most frequently used in

- Educational testing
- Market research
- Elections

While chooses between multiple candidates, parties, or policies



# Structure : Multiple Choice Items

- Consist of **Two Parts**
  - Problem
  - List of Suggested Solutions



Presented as Direct Question or incomplete statements Called Stem of the items

**Direct Question** : Easier to write, Present a clearly formulated problem.

**Incomplete statements** : More Concise



# Multiple choice Forms

## Examples:

### Direct-Question Form

In Which one of the following cities is the capital of California ?

- A- Los Angeles
- B- Sacramento
- C- San Diego
- D- San Francisco

### Incomplete Statement Form

The Capital of California is in

- A- Los Angeles
- B- Sacramento
- C- San Diego
- D- San Francisco



# Multiple choice Forms

- **List of Suggested Solutions**  
( **Choices or Options** )

**Includes :**

- **Words**
- **Numbers**
- **Symbols**
- **Phrases**



# Uses of Multiple choice Items

- Measure Variety of Learning Outcomes:

IN following Area

- Knowledge
  - Understanding
  - Application
- 
- Adaptable to Most type of Subject Matter Content.



# Uses of Multiple choice Items

- Measure Knowledge Outcomes
  - Knowledge of Terminology
    - The knowledge of particular term by selecting a word that has the same meaning as the given term or by choosing a definition of the term.
    - By having students identify the meaning of the term when used in the context.





# Uses of Multiple choice Items

- **Example**

Which one of the following words has the same meaning as the word egress

A- Depress

B- Enter

C- Exit

D- Regress



# Uses of Multiple choice Items

- **Knowledge of Specific Fact**
  - Provides a necessary basis for developing understanding
  - Thinking Skills
- **Example**

When did a United States astronaut first orbit the earth in space ?

A- 1960

B- 1961

C- 1962

D- 1963



# Uses of Multiple choice Items

- **Knowledge of Principles**
  - An important learning Outcome

## Example

The principle of capillary action helps explain how fluids

A- enter solutions of lower concentration.

B- escape through small openings

C- pass through semi permeable membranes

D- rise in the fine tubes.



# Uses of Multiple choice Items

- **Knowledge of Methods and Procedures**
  - This includes areas as
    - Knowledge of laboratory procedures
    - Knowledge underlying communication
    - Computational and performance skills
    - Knowledge methods used in problem solving
    - Knowledge of governmental procedure
    - Knowledge of common social practices



# Uses of Multiple choice Items

## Example

Alternating electric current is changed to direct current by means of a

A- Condenser.

B- Generator

C- Rectifier

D- Transformers



# Cont

- **Ability to interpret Cause and effect Relationship**
  - By interpret various relationships among facts to identify the reason that best account for it.

Bread will not become moldy as rapidly if placed in a refrigerator because

- A-** Cooling retards the growth of fungi
- B-** darkness retards the growth of mold
- C-** cooling prevents the bread from drying out so rapidly
- D-** mold requires both heat and light for best growth.



# Cont

- **Ability to Justify the Methods and Procedures**
  - Test the ability of student to *identify* best Method or sequence of procedure
  - By selecting best of various possible explanation of a method or procedure

**Why is adequate lighting necessary in a balanced aquarium**

- A-** Fish need light to see their food
- B-** Fish take in oxygen in the dark
- C-** Plants expel carbon dioxide in the dark
- D-** Plants grow too rapidly in the dark.



# Advantages and Limitation

## Advantages

- Effectively measures knowledge and complex learning outcomes
- More flexible, Measures what students have learned
- Free of short comings characteristics.
- Higher reliability per items
- Avoiding homogeneous material
- With MCQs can prepare high quality test





# Advantages and Limitation

## Limitations

- Limited to verbal level test
- Does not develop problem solving skills
- Difficulties to find sufficient number of Plausible distracters.



# Constructing Multiple Choice Items

Superior quality MCQs may be constructed by

- A clearly stated Problem
- Identifying plausible alternatives
- Removing irrelevant Clues



# Constructing Multiple Choice Items

## Suggestions

**Rule 1:-** The stem of the item should be meaningful by itself and should present a definite problem.

*Poor:* South America

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A is a flat, arid country.

B imports coffee from the United States.

C has a larger population than the United States.

**Ⓓ** was settled mainly by colonists from Spain.

*Better:* Most of South America was settled by colonists from

A England.

B France.

C Holland.

**Ⓓ** Spain.



# Constructing Multiple Choice Items

## Suggestions

**Rule 2:-** The item stem should include as much of the item as possible and should be free of irrelevant material.

*Poor:* Most of South America was settled by colonists from Spain. How would you account for the large number of Spanish colonists settling there?

- A They were adventurous.
- B They were in search of wealth.
- C They wanted lower taxes.
- D They were seeking religious freedom.

*Better:* Why did Spanish colonists settle most of South America?

- A They were adventurous.
- B They were in search of wealth.
- C They wanted lower taxes.
- D They were seeking religious freedom.

*Best:* Spanish colonists settled most of South America in search of

- A adventure.
- B wealth.
- C lower taxes.
- D religious freedom.



# Constructing Multiple Choice Items

## Suggestions

**Rule 3:**-Use a negatively stated stem only when significant learning outcomes require it.

*Poor:* Which one of the following states is not located north of the Mason-Dixon line?

- A Maine
- B New York
- C Pennsylvania
- D Virginia

*Better:* Which one of the following states is located south of the Mason-Dixon line?

- A Maine
- B New York
- C Pennsylvania
- D Virginia



# Constructing Multiple Choice Items

## Suggestions

**Rule 4:-** All the alternatives should be grammatically consistent with the stem of the item.

*Poor:* An electric transformer can be used

- A for storing electricity.
- B to increase the voltage of alternating current.
- C it converts electrical energy into mechanical energy.
- D alternating current is changed to direct current.

*Better:* An electric transformer can be used to

- A store electricity.
- B increase the voltage of alternating current.
- C convert electrical energy into mechanical energy.
- D change alternating current to direct current.



# Constructing Multiple Choice Items

## Suggestions

Rule 5 :- An item should contain only one correct or clearly best answer.

*Poor:* The state of Michigan borders on

- A Lake Huron.
- B Lake Ontario.
- C Indiana.
- D Illinois.

*Better:* The state of Michigan borders on

- |   |               |                                    |                                    |
|---|---------------|------------------------------------|------------------------------------|
| A | Lake Huron.   | <input checked="" type="radio"/> T | <input type="radio"/> F            |
| B | Lake Ontario. | <input type="radio"/> T            | <input checked="" type="radio"/> F |
| C | Indiana.      | <input checked="" type="radio"/> T | <input type="radio"/> F            |
| D | Illinois.     | <input type="radio"/> T            | <input checked="" type="radio"/> F |



# Constructing Multiple Choice Items

## Suggestions

**Rule 6:-** Items used to measure understanding should contain some novelty, but beware of too much.

**Rule 7:-** All distracters should be plausible. The purpose of a distracter is to distract the uninformed from the correct answer.

*Poor:* Who discovered the North Pole?

- A Christopher Columbus
- B Ferdinand Magellan
- C Robert Peary
- D Marco Polo

*Better:* Who discovered the North Pole?

- A Roald Amundsen
- B Richard Byrd
- C Robert Peary
- D Robert Scott





# Constructing Multiple Choice Items

## Suggestions

**Rule 8:-** Verbal associations between the stem and the correct answer should be avoided.

*Poor:* Which one of the following agencies should you contact to find out about a tornado warning in your locality?

- A State farm bureau
- B Local radio station
- C United States Post Office
- D United States Weather Bureau

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*Better:* Which one of the following agencies should you contact to find out about a tornado warning in your locality?

- A Local farm bureau
- B Nearest radio station
- C Local post office
- D United States Weather Bureau



# Constructing Multiple Choice Items

## Suggestions

**Rule 9:-** The relative length of the alternatives should not provide a clue to the answer.

*Poor:* What is the major purpose of the United Nations?

- Ⓐ To maintain peace among the peoples of the world
- B To establish international law
- C To provide military control
- D To form new governments

*Better:* What is the major purpose of the United Nations?

- Ⓐ To maintain peace among the peoples of the world
- B To develop a new system of international law
- C To provide military control of nations that have recently attained their independence
- D To establish and maintain democratic forms of government in newly formed nations



# Constructing Multiple Choice Items

## Suggestions

- **Rule 10:-** The correct answer should appear in each of the alternative positions an approximately equal number of times but in random order.

If Page Number	Place Correct
Ends in	Answer
1	First
3	Second
5	Third
7	Fourth
9	Fifth

