



Creating Educational Tests

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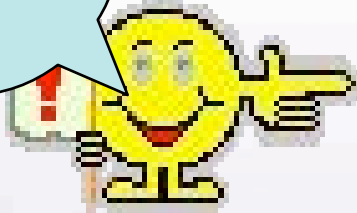
Stanley R. Cohen, Ed.D.

Kathleen P. Hagen, MM



Selected Response Tests

Focus



- True-False
- Matching
- **Multiple Choice**

Background

- Advantages
 - Allows for assessment of a wide range of learning objectives
 - May provide diagnostic information by analyzing patterns of incorrect responses

Jean Mandernach: Park University Faculty
Development. Park University.

Background

- Advantages
 - Permits wide sampling and broad coverage of content domain
 - Allows the comparison and evaluation of related ideas, concepts, or theories

Jean Mandernach: Park University Faculty
Development. Park University.

Background

- Advantages
 - Permits manipulation of difficulty level by adjusting the degree of similarity among response options
 - Amenable to item analysis

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Background

- Disadvantages
 - Quality items are difficult and time consuming to develop
 - Tendency for items to focus on low level learning objectives

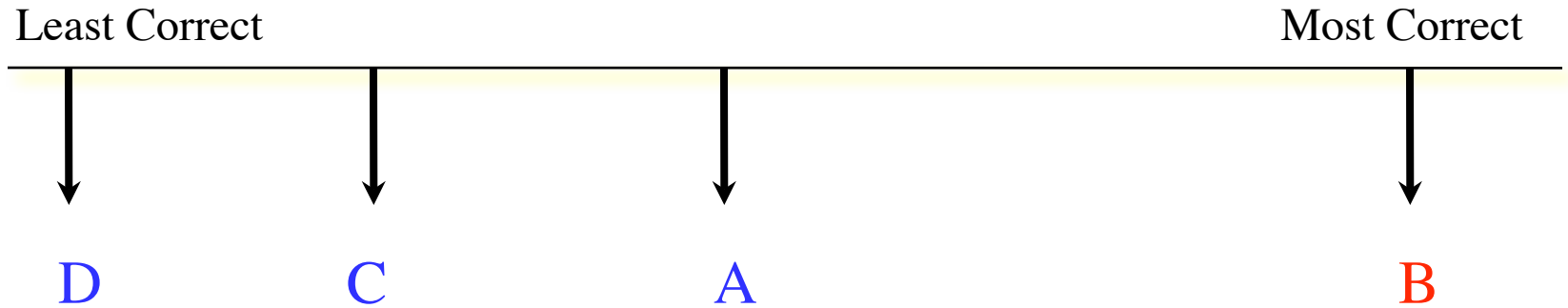
Jean Mandernach: Park University Faculty
Development. Park University.

Background

- Disadvantages
 - Assessment results may be biased by students' reading ability and test-wiseness
 - Does not measure the ability to organize and express ideas

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One-Best-Answer



Stand Alone

Polysaccharides of the plant cell wall are synthesized mainly in:

- a. the endoplasmic reticulum
- b. the cytosol
- c. the plasma membrane
- d. the Golgi complex
- e. amyloplasts

Colleen McKenna & Joanna Bull: Designing effective objective questions:
CAA Centre, Loughborough University.

Stimulus Response

Stem:

A 32-year-old-man has a 4-day history of progressive weakness in his extremities. He has

Lead-In:

Which of the following is the most likely diagnosis?

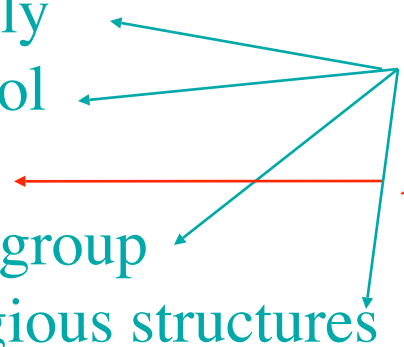
Options:

- a. Acute disseminated encephalomyelitis
- b. Guillain-Barre syndrome
- c. Myasthenia gravis
- d. Poliomyelitis
- e. Polymyositis

Susan M Case & David B. Swanson,
National Board of Medical Examiners

Components

As societies increase in complexity from folk to industrial, social control is more likely to be invested in the

- A. Family
 - B. School
 - C. State
 - D. Peer group
 - E. Religious structures
- Distractors**
- Answer**
- 

Stem





Guidelines

- **Single, definite statement**

Polysaccharides:

- a. the endoplasmic reticulum
- b. the cytosol
- c. the plasma membrane
- d. the Golgi complex
- e. amyloplasts

Guidelines



- **Single, definite statement**

Polysaccharides of the plant cell wall are synthesized mainly in:

- a. the endoplasmic reticulum
- b. the cytosol
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Guidelines



- **Avoid unnecessary information**

Paul Muldon, an Irish postmodern poet who uses experimental and playful language, uses which poetic genre in “Why Brownlee Left”?

- a. sonnet
- b. elegy
- c. narrative poem
- d. dramatic monologue
- e. haiku

Guidelines



- **Avoid unnecessary information**

Paul Muldon uses which poetic genre in “Why Brownlee Left”?

- a. sonnet
- b. elegy
- c. narrative poem
- d. dramatic monologue
- e. haiku

Guidelines



- **Use negatives sparingly**

Which of the following is not a symptom of osteoporosis?

- decreased bone density
- frequent bone fractures
- raised body temperatures
- lower back pain

Guidelines



- **Use negatives sparingly**

Which of the following **is** a symptom of osteoporosis?

- a. decreased bone density
- b. hair loss
- c. raised body temperatures
- d. painful joints

Guidelines



- **Avoid giving clues to answer**

A fertile area in the desert in which the water table reaches the ground surface is called **an**?

- a. mirage
- b. oasis
- c. water hole
- d. polder

Guidelines



- **Avoid giving clues to answer**

A fertile area in the desert in which the water table reaches the ground surface is called **a/an**?

- a. mirage
- b. oasis
- c. water hole
- d. polder

Guidelines



- **Avoid long correct answer**

Secondary gain is:

- a. synonymous with malingering
- b. a frequent problem in obsessive-compulsive disorder
- c. a complication of a variety of illnesses and tends to prolong many of them
- d. never seen in organic brain damage

Guidelines



- **Avoid logical clues**

Crime is:

- a. equally distributed among the social classes
- b. over-represented among the poor
- c. over-represented among the middle class
- d. reaching a plateau of tolerability for the nations

Guidelines



- **Avoid inconsistent numeric data**

Following a second episode of infection, what is the likelihood that a woman is infertile:

- a. less than 20%
- b. 20 to 30%
- c. Greater than 50%
- d. 90%
- e. 75%

Guidelines



- **Avoid vague frequency terms**

Severe obesity in early adolescence:

- usually responds dramatically to dietary regimens
- often is related to endocrine disorders
- has a 75% chance of clearing spontaneously
- show poor prognosis
- usually responds to pharmacotherapy

Additional Guidelines

Length

 Stand Alone MC

 1 minute per question

 Stimulus Response

 max 10 items per unit



Additional Guidelines

Frequency

 More than mid-term and final

 Too many impedes class time

 Moderate frequency correlated with final exam

 First exam usually 3rd week



Additional Guidelines

Distractors

★ remain consistent

★ 3 to 4 distractors

Avoid

★ none of the above

★ all of the above

★ k type questions



Item Shape

LONG STEM

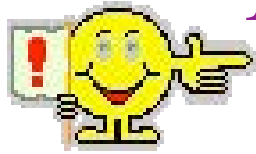
A. SHORT OPTIONS

B. SHORT OPTIONS

C. SHORT OPTIONS

D. SHORT OPTIONS

Connect Theory with Practice



Following are two test questions
derived from the objectives we
did earlier.

Example 1

What is the primary treatment for a periodontal abscess?

- A. Antibiotics
- B. Incision and drainage
- C. Remove tooth decay
- D. Treat pain with anti-inflammatories

Example 2

Which of the following antibiotics will destroy anaerobes but will not harm most of the beneficial aerobic organisms?

- A. Clindamycin
- B. Metronidazole
- C. Ampicillin

PRACTICE



What You Need for this Exercise

- The objectives you wrote earlier
- The dental anatomy content paper
- 2 - 3 sheets of blank paper
- A pen or pencil

Format for this Exercise

- Rejoin your objective team
- Find the objectives you created earlier
- Write 2 questions for each level
- Spend 15 minutes writing questions
- Be prepared to share your questions with the entire group

