How to survive (and ace) the NMAT?

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Calm and compose yourselves.
What is NMAT?
What is it for?
National Medical Admission Test (NMAT)

Center for Educational Measurement, Inc.

Description

An instrument that measures several abilities deemed necessary for success in medical training and practice

Objective

To upgrade the selection of applicants to medical schools
Coefficients as low as .30 are generally considered appropriate and valid for predictive purposes (Bobko, 1995).
### TABLE 3. Coefficients of determination

<table>
<thead>
<tr>
<th>Variable pair</th>
<th>School A</th>
<th>School B</th>
<th>School C</th>
</tr>
</thead>
<tbody>
<tr>
<td>NGPS x FGPA</td>
<td>$d_{12}$</td>
<td>0.2966</td>
<td>0.3131</td>
</tr>
<tr>
<td>NGPS x OGPA</td>
<td>$d_{13}$</td>
<td>0.2940</td>
<td>0.3112</td>
</tr>
</tbody>
</table>

Table 3 shows that around 30% of the total variation in academic performance can be explained by performance in the NMAT. In other words, the use of the NMAT GPS as predictor makes forecasting 30% to 36% better than mere random guessing.
NMAT

NMAT Scores of 2006 PLE Passers

- PLE passers w/ NMAT taken once (N = 1,176):
  GPS Mean = 584; SD = 87

<table>
<thead>
<tr>
<th>GPS Range</th>
<th>QI Range</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>524–800</td>
<td>HA–E</td>
<td>76</td>
</tr>
<tr>
<td>476–523</td>
<td>A</td>
<td>14</td>
</tr>
<tr>
<td>200–475</td>
<td>VP–LA</td>
<td>10</td>
</tr>
</tbody>
</table>
NMAT Scores of 2006 PLE Passers

- PLE passers w/ NMAT retaken (N = 182): GPS on retake not significantly different from initial GPS
KNOW.

What are included in the NMAT?
Why are these items included?
How are these items selected?
How NMAT is graded?
NMAT

- APTITUDE items

  - Mental Ability
    - Verbal Ability in English
      - Word Analogies
      - Reading Comprehension
    - Inductive Reasoning
      - Number/Letter/Figure Series
      - Figure Grouping
NMAT

- APTITUDE items

  - Mental Ability
    - Quantitative Ability
      - Fundamental Operations
      - Problem Solving
      - Data Interpretation
    - Perceptual Ability
      - Hidden Figures
      - Mirror Image
      - Identical Information
APTITUDE items

- Measure a student’s *(current developed)* cognitive ability, potential, or capacity to learn
- Reflect (and measure) past learning from in-school and out-of-school experiences
- *Do not* measure innate capacity that cannot change
- Determine *expected* learning
NMAT

- PROFICIENCY items
  - Biology
  - Chemistry
  - Physics
  - Social Sciences
    - Psychology
    - Sociology
    - Anthropology
NMAT

- PROFICIENCY items

- Measure *developed* knowledge, skills, and abilities through planned instruction
- Determine whether student’s knowledge, skills, and abilities (at the point of testing) are *competent* for advanced instruction
- Measure *mastery* of learned materials and *readiness for advanced instruction*
STANDARDIZED items

- Academic requirements of medical schools
- Key aptitudes identified by Pacific Association for Clinical Training (PACT) for medical course
NMAT

- STANDARDIZED items

Test Development Procedure

1. Content specification
2. Item writing and review
3. Pretesting and item analysis
4. Test assembly
5. Test administration
6. Score scales generation & equating
8. Enzymes are important to the life of cells because they

(A) speed up chemical reactions in the cells
(B) increase the amount of products of chemical reaction
(C) provide the energy necessary for reactions to occur
(D) provide the substance for the reactions in the cells
NMAT

- Report Form
Calm and compose yourselves (again).
KNOW YOURSELF.

Am I ready *intellectually* & *emotionally*?
Do I have *test anxiety*?
What are my usual emotional reactions to tests?
Test Anxiety (Reactions to Test)

- **Tension**
  - Feeling of unease or jitters before a test

- **Worry**
  - Concern on failure and what may happen

- **Test-irrelevant thinking**
  - Thinking about things other than the test (which may interfere with performance)

- **Bodily reactions**
  - Headaches, upset stomach, and rapid heartbeat
Types of Text-Anxious Students

- **Not learning well**
  - Do not have good study skills and do not understand how ideas are related and organized

- **Having fear of failure**
  - Do have good study skills and have good grasp of material

- **Performing poorly on assessments and learning to be anxious about being assessed**
  - Believe to have good study skills but who *do not have*
DO NOT PANIC!

Calm and compose yourselves (again and again).
Relax by praying.
PREPARE.

Know the exam.
Review.
Develop a study program.
PREPARE.

Practice ahead. Mimic the test conditions.
Get yourself familiarized.
Learn the exam format and structure.
STRATEGIZE.
Word Analogies

Task: to make connections between concepts they are familiar with and new information

- Find the relationship between the first two words in the question.
- Find an answer choice (missing word) that shows the most similar relationship.

Example:

MAN : WOMAN :: BOY :

(A) child  (B) friend  (C) baby  (D) girl

In the example, MAN is to WOMAN as BOY is to girl. Therefore, the correct answer is D.
Verbal Ability

Word Analogies

- Know the types of analogies that can be used.

- **Opposites Analogies**
  - Crying and laughing
  - Fire and ice
  - Question and answer
Verbal Ability

Word Analogies

- Know the types of analogies that can be used.

  - **Object and Classification Analogies**
    - Knife and kitchenware
    - Red and color
    - Pants and clothing
Verbal Ability

Word Analogies

- Know the types of analogies that can be used.

  - *Object and Related Object Analogies*
    - Cat and kitten
    - Plant and seed
    - Dog and puppy
Verbal Ability

Word Analogies

Know the types of analogies that can be used.

**Object and Group Analogies**
- Wolf and pack
- Tree and forest
- Seagull and flock
Verbal Ability

Word Analogies

- Know the types of analogies that can be used.

  - **Degree of Characteristics Analogies**
    - Tired and exhausted
    - Warm and hot
    - Cold and freezing
Verbal Ability

Word Analogies

- Know the types of analogies that can be used.

- **Cause and Effect Analogies**
  - Spin and dizzy
  - Fire and burn
  - Read and learn
Verbal Ability

Word Analogies

- Know the types of analogies that can be used.

  - *Effort and Result Analogies*
    - Paint and painting
    - Build and house
    - Write and letter
Word Analogies

Know the types of analogies that can be used.

**Problem and Solution Analogies**
- Itch and scratch
- Unemployment and job application
- Tired and sleep
Verbal Ability

Word Analogies

- Know the types of analogies that can be used.

  - *Verb Tenses Analogies*
    - Walk and walked
    - Eat and ate
    - Sent and send
Verbal Ability

Word Analogies

- Know the types of analogies that can be used.

  - **Performer and Action Analogies**
    - Painter and paint
    - Soldier and fight
    - Scientist and research
Verbal Ability

Word Analogies

- Know the types of analogies that can be used.
  
  - **Object and Part of the Whole Analogies**
    - Brick and wall
    - Glass and window
    - Page and book
Verbal Ability

Word Analogies

- Know the types of analogies that can be used.

  - Object and Function Analogies
    - Keyboard and type
    - Telephone and call
    - Paintbrush and paint
Verbal Ability

Word Analogies

- Know the types of analogies that can be used.

  - **Object and Location Analogies**
    - Dog and doghouse
    - Plane and airport
    - Tree and forest
Verbal Ability

Word Analogies

- Know the types of analogies that can be used.

- *Things That Go Together Analogies*
  - Salt and pepper
  - Ham and cheese
  - Spoon and fork
Verbal Ability

Word Analogies

- Know the types of analogies that can be used.

  - **Synonym Analogies**
    - Sad and depressed
    - Slender and thin
    - Obese and fat
Verbal Ability

Word Analogies

Know the types of analogies that can be used.

- *Antonym Analogies*
  - Poverty and wealth
  - Inflation and deflation
  - Frail and strong
Verbal Ability

Word Analogies

- Know the types of analogies that can be used.

- Rhyme Analogies
  - Deer and steer
  - Glasses and mosses
  - Whey and away
Verbal Ability

Word Analogies

- Know the types of analogies that can be used.

- **Geography Analogies**
  - Chicago and Illinois
  - Denver and Colorado
  - Boston and Massachusetts
Verbal Ability

Word Analogies

- Know the types of analogies that can be used.

- **Measurement Analogies**
  - Pound and kilogram
  - Quart and liter
  - Feet and meter
Verbal Ability

Word Analogies

- Know the types of analogies that can be used.

  - Time Analogies
    - March and spring
    - December and winter
    - September and fall
Verbal Ability

Word Analogies

- Sharpen context clues skills.
- Eliminate choices
  - That represent relationships that do not match
  - That have vague relationships
- Try reading the word pairs backward.
Verbal Ability

Reading Comprehension

Task: to understand information presented in written form

It tests ability to comprehend (recall and understand or reword), analyze (infer from a passage, examine, or explain), and even evaluate (judge based on criteria).

26. What conclusion can be deduced from the second paragraph?

(A) Man is a lover of noise-producing machines.
(B) Man depends on sounds to keep him functioning.
(C) Man likes inventions because these are signs of progress.
(D) Man finds complete relaxation only when surrounded by noise.

27. As used in the selection, what does "conundrum" mean?

(A) Belief
(B) Proposition
(C) Riddle
(D) Saying
Reading Comprehension

- Be “tipped off” by the question. Start by reading the question and scanning the answer choices.
  - Learn what information you can skip initially.
  - Think logically about where the information is most likely to be located.
Verbal Ability

Reading Comprehension

- Read actively.
  - Focus your attention by asking yourself, “What is the main theme?”
  - Do not get caught asking yourself, “What did I just read?”

- Pay close attention to the first paragraph.
Verbal Ability

Reading Comprehension

- Read for the main idea.
  - Figure the main idea. Identify key supporting details. Pay attention to how everything is set up.
  - Anticipate and predict.
  - Don’t try to memorize every detail. You can go back to the passage all you want.
Verbal Ability

Reading Comprehension

- Use text structure to assist comprehension.
  - Look for transitional words and phrases (i.e. because, in addition, instead of) to determine relationships among sentences, paragraphs, and sections.
Verbal Ability

Reading Comprehension

- Use contextual analysis to understand new terms.
- Organize and integrate new information.
Verbal Ability

Reading Comprehension

- When answering, refer to the passage.
- Reread, if necessary.
- Do not spend too much time on any one question.
Section 1. Figure Series

DIRECTIONS: In each item below, the series of figures at the left shows a continuously changing pattern. Discover this pattern of change. From the five figures at the right, choose the one which should come next in the series.

Example:

(A)  (B)  (C)  (D)  (E)

In the given example, the three diagrams at the left show a line increasing progressively in such a way as to approach a closed figure. If another line is added, the resulting form would look exactly like figure C at the right. Thus, the correct answer is C.
Section 2. Figure Grouping

DIRECTIONS: Each item in this section consists of five figures. The task is to find the principle involved which makes four of the five figures similar to each other. The figure that is different from the other four is the correct answer to the item.

Example:

(A)  
(B)  
(C)  
(D)  
(E)  

In the example, the correct answer is figure C, because the arrows are all pointing downward, whereas the arrows in each of the other figures are all pointing upward.

There are other principles involved in the items aside from that illustrated in the sample.
Inductive Reasoning

Number and Letter Series

Task: to identify the underlying logical rules or patterns of each series and use this information to select from a number of options

It tests ability (competence and skill) to work flexibly with unfamiliar information so as to solve given problems. To find solutions, it requires hypothesis construction and educated predictions.
Inductive Reasoning

- To spot the logical rules, focus on ONE detail at a time and note how it changes throughout the sequence.

- Once you are stuck on a particular question, move on and come back to it if you have the time.
Inductive Reasoning

A B C D E
Inductive Reasoning

A B C D E
Quantitative Reasoning

Fundamental Operations

Task: to carry out fundamental operations in mathematics

It tests ability to organize and apply knowledge of basic mathematics.

Section 1. Fundamental Operations

DIRECTIONS: In each item below, select the correct answer from the given choices.

Example:

\[ 6 \times 2 + 4 = \]

(A) 3  (B) 4  (C) 6  (D) 8

The correct answer is A.
Quantitative Reasoning

Problem Solving

Task: to solve word problems using fundamental operations in mathematics.

Example:

If a man drives $p$ kilometers in $x$ hours, then his average rate per hour is

(A) $\frac{p}{x}$  
(B) $\frac{x}{p}$  
(C) $px$  
(D) $\frac{px}{60}$

The correct answer is A.
Task: to evaluate situations and draw conclusions based from the data (tables and graphs) provided.
Quantitative Reasoning

Data Interpretation

The table below gives the distribution of Science majors in a university.

<table>
<thead>
<tr>
<th>Area</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>200</td>
</tr>
<tr>
<td>Physics</td>
<td>130</td>
</tr>
<tr>
<td>Biology/Zoology/Botany</td>
<td>560</td>
</tr>
<tr>
<td>Chemistry</td>
<td>180</td>
</tr>
<tr>
<td>Geology/Meteorology/Oceanography</td>
<td>80</td>
</tr>
</tbody>
</table>

It tests ability to interpret, analyze, and draw logical conclusions based on numerical data in tables and graphs.
Quantitative Reasoning

- Know fundamental concepts and formulas. Achieve conceptual clarity.

- Be careful in doing the computations and plugging the values. Make estimations.

- Understand the problem.
  - Determine
    - What you are supposed to find
    - What you need to find
    - What is the unknown
Quantitative Reasoning

- Find a way to solve for the unknown.
  - Write down all that is given or known.
  - Draw a sketch, when appropriate, to show relations.
  - Write down all relevant formulas.

- Work backwards. Try the answer choices.
Perceptual Ability

Hidden Figures

Section 1. Hidden Figure

DIRECTIONS: Each item below is made up of a simple figure at the left and five complicated drawings at the right. Select the complicated drawing that contains the simple figure. The hidden figure may appear in a different position but it must have the same shape and size as the simple figure.

Example:

In the example, the correct answer is D because it contains the simple figure at the left.

Task: to spot the simple figure from the complicated drawings in order to test spatial visualization skills
Perceptual Ability

Mirror Image

Section 2. Mirror Image

DIRECTIONS: Each item below consists of a figure followed by five options. Select from the options the mirror image of the given figure.

Example:

In the example, the correct answer is C.

Task: to find the mirror image of a given figure in order to test spatial visualization skills
Perceptual Ability

- Recognize the form.
- Recognize the space.
- Create a visual memory.
  - Remember what you saw.
  - Determine what visual details are important to hold to.
Perceptual Ability

Identical Information

Task: to find the exact match of information, in terms of word sequence, spelling, and punctuation.

These measure meticulousness and focus of attention.

Section 3. Identical Information

DIRECTIONS: Each item below consists of a name and an address, a bibliographical entry, or a sentence. From the options that follow, select the one which exactly matches the given information in word sequence, spelling, and punctuation.

Example:

Rx Laboratories,
275-D West Ave.,
Lansing, Turkey
Perceptual Ability

- Develop letter and number orientation.

- Make a visual memory of
  - Sequence
  - Details
  - Organization

- Tap on your short term memory!
Academic Proficiency

- Get a good coverage of test content in
  - Biology
  - Chemistry
  - Physics
  - Social Sciences

- Use testwiseness.
Testwiseness Strategies

- Use time wisely.
  - Begin to work as rapidly as possible with reasonable assurance of accuracy.
  - Set up a schedule of progress through the test.
  - Omit or guess at items.
  - To assure easy relocation, mark items that are omitted or that could use further consideration.
  - Use time remaining after completion of the test to reconsider answers.
Testwiseness Strategies

- Avoid error.
  - Pay careful attention to directions, determining clearly the nature of the task and the intended basis for response.
  - Pay careful attention to the items, determining clearly the nature of the question.
  - Ask examiner for clarification when necessary, if it is permitted.
  - Check all answers.
Testwiseness Strategies

- Use deductive reasoning (to guess).
  - Eliminate options which are known to be incorrect and choose from among the remaining options.
  - Choose neither or both options which imply the correctness of each other.
  - Choose neither or one (but not both) of two statements, one of which, if correct, would imply the incorrectness of the other.
Testwiseness Strategies

- Use deductive reasoning (to guess).
  - Restrict choice to those options which encompass all of two or more given statements known to be correct.
  - Utilize relevant content information in other test items and options.
Testwiseness Strategies

- Use cues and clues.
  - Longer (shorter) than the incorrect options
  - More qualifiers or higher degree of generalization
  - More false statements
  - At logical position among an ordered set of options (i.e. middle of the sequence)
  - Similar and dissimilar statements
  - Familiar or unfamiliar phraseology
  - Grammatically consistent with the question
Testwiseness Strategies

- Consider the relevancy of specific detail when answering a given item.
- Recognize and make use of specific determiners.
- Consider the subject matter and difficulty of neighboring items when interpreting and answering a given item.
Use testwiseness …

- The Augustine National Party has its headquarters in
  A. Camden, New Jersey
  B. St. Augustine, Florida
  C. Palo Alto, California
  D. Dallas Texas
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Hermann Klavermann is best known for

A. developing all musical scales used in the western world
B. composing every sonata during the Romantic era
C. translating all Russian classics into English
D. inventing the safety pin
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Use testwiseness ...

- The Davis Act of the 20th century
  A. provided more money for schools
  B. struck down an earlier law
  C. prohibited the manufacture, sale, transportation, or use of several specific drugs that were being used for illegal purposes
  D. gave a rise to government employees
The Davis Act of the 20th century

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Harold Stone’s book, “The Last Friendship,” is an example of an
A. political satire
B. autobiography
C. science fiction
D. biography
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8. Enzymes are important to the life of cells because they

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(B) increase the amount of products of chemical reaction
(C) provide the energy necessary for reactions to occur
(D) provide the substance for the reactions in the cells
Does it pay to change answers?

It does pay to change answers if changing them is based on a *thoughtful reconsideration* of an item.
Changing Answers

- Research (Wise, 1996) showed that:
  - Most test takers and many educators believe it does not pay to change answers.
  - Most students, however, do in fact change their answers to about 4% of the items.
  - It does, in fact, pay to change answers because typically two out of three answers changed would be correct.
  - The pay-off for changing answers diminishes as the items become more difficult for the student.
  - Lower-scoring students benefit less from changing answers than higher-scoring students do.
What if I am running out of time?

Choose the middle options.
Make each alternative as the correct answers about the same number of times.
Remember …

Do not panic.
Get enough rest.
Prepare needed documents (NMAT identification forms and valid ID) and materials (pencil no. 2, eraser, and watch) beforehand.
Arrive at test site ahead of time.
Pray.
Good luck!

Sleep and rest well.
Do not panic. You can ace the NMAT!
You are HSc! You are MORE!
References


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