National Center for Assessment
in Higher Education

GAT

General Aptitude Test

(English Version)

A Brief Introduction

Background

This brochure aims at providing you with brief information about the National Center for Assessment in Higher Education (NCAHE). It also provides you with information on one of the tests that the Center has prepared and conducted, namely, the General Aptitude Test (GAT).

The Center was established as an independent entity based on a Royal Decree issued on 18/9/2000. Its mission is to specialize in the issues of educational measurement, specially those relating to university admission.

The General Aptitude Test (GAT) was developed to satisfy the need for a standardized measurement of scholastic aptitude for use by institutions of higher learning. The original GAT Arabic Version has been in use for several years as one of the major tools in selecting those who will be admitted to universities and colleges throughout the Kingdom as well as in some other Arab countries. With the current growth in the field of education and continuing development of numerous private institutions of higher learning, there is a need for the same test to be presented in English for those applicants who are not native Arab speakers. The GAT English Version is not merely a translation of the GAT Arabic Version, but an original test created by the Center for English speakers. It guarantees an assessment on a scale equitable to those taking the GAT Arabic Version.

What is GAT?

The GAT English Version, like the GAT Arabic Version, uses language and mathematics to measure the following abilities:

1. Reading comprehension
2. Logical relations
3. Problem-solving behavior
4. Inferential abilities
5. Inductional abilities

The test consists of six sections. All questions are multiple choice, with four possible answers marked as A, B, C, and D. The test-takers select the best answer and mark their choice on the answer sheet. The answer sheets are then machine scored.

Some of the questions in the GAT are non-scorable items and are not counted toward the score of the test-taker. Rather, they help maintain statistical reliability in composing GAT examinations in the future.

The test-takers' scores are calculated only on the 120 questions of the actual GAT test; 68 of these questions are verbal and 52 are quantitative. To enhance security there are 5 forms of each test. The overall duration of the test is 3 hours.

Goals
Educational measurement weighs a characteristic that the learner possesses utilizing numerical values. It assesses the applicants' academic aptitude through tests and/or inventories. A test used as an admission tool addresses the following questions:

◈　　To what extent does a student possess certain skills?

◈　　Does the student's ability qualify him/her for admission to a particular study program?

◈　　To which program should a student be admitted?

Who should take the test?
The GAT is required for admission to all institutions of higher learning. Students who are applying for admission at any university or college should take the test as part of the admission criteria, either the Arabic Version or the English Version.

Administering the GAT English Version

Institutions that wish to use the GAT English Version should consult the Center well in advance to arrange timings and locations. Applicants can request this information from the institution he or she is applying to or from the National Center itself.

How GAT is developed

The Center follows established scientific methods in preparing its tests and follows standards that insure quality and accuracy. The formation process of the test can be summarized as follows:

1. **Scientific Preparation:** The Center uses only qualified professionals in Verbal, Math, and IQ item writing as well as professionals in Psychometric Testing. It holds several regularly scheduled four-day workshops in test objectives and item writing, depending on need.

2. **Item Writing:** The Center asks the workshop participants to write questions for the various test components according to the assigned requirements and objectives of the test.

3. **Registration:** When items are sent to the Center, each item is assigned a special code number that remains with it in the item bank, whether or not the item is actually used. Likewise, each item writer is also given a code number in order to insure anonymity and avoid any kind of personal bias.

4. **Reviewing:** With anonymity of the item writer assured, each item is reviewed by a committee which consists of three members: (1) a field specialist, (2) a specialist in measurement and (3) a neutral person who may be an advocate for the test-taker or the society at large. The Reviewing Committee scrutinizes each item for: content, domain, bias towards sex or region, difficulty, creativity, suitability of each stem and/or choices. When the item is selected

for use in a test, it is reviewed for a second time to insure accuracy and adherence to the test requirements.

5.   **Trial Items:** Several items are incorporated within a test as try-out items. Test-takers are not aware of which items are in this category. Only the real items in the test are scored for the test-takers.

6.   Analysis: All try-out items are statistically analyzed and reviewed. Items that show good statistical measurements are then stored in the item bank for future tests. The bad try-outs are revised and tested again or discarded if not correctable.

Test Formation

In order to insure security, the actual test in its final shape, including the trial items, is used to generate alternate forms. All items that form the test are arranged randomly. Care is taken that each section has different ideas and difficulty levels. The objective is to obtain equally balanced forms with ascending difficulty in each section, thus insuring that the score obtained reflects the real level of the test-takers. Finally, tests are printed in booklets that contain general instructions as well as specific instructions for each section. Example questions and how to answer them are on the back cover page of the test booklet.

Statistical Criteria

Items are evaluated statistically with classical and Item Response Theory (IRT) models. Items are included if their classical difficulty is reasonable (average difficulty for the total test is around 0.5) and their discrimination around 0.3. They also have to meet the criteria of the IRT three-parameter model:

-- good discrimination (above 0.50),
-- coverage of the ability spectrum,
-- low guessing parameter value.

GAT Reliability and Validity
Every time the test is given, the reliability factor is calculated. It has been found that the reliability factor has never been less than 0.91. Parallel form correlation between any two different versions of the test is not less than 0.88 if the test is given within three months.

As for the validity of the test, the Center makes sure that test items are not biased to a particular region. Also, test predictive validity is checked every year for all students who take the test. At the universities the optimal weight for both the test and the high school grades is studied with regression analysis; concurrent validity between the test and high school grades is also calculated. The value of the correlation is 0.56. Also, the correlation between the standardized achievement test produced by the Center and the General Aptitude Test is 0.68. Thus, all indicators suggest that GAT is a valid measure and its predictive validity when combined with high school grades is reasonable. However, the test precedes high school grades in the predictive equation.

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