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⑥ REPORT ON THE CONSTRUCTION OF VARIOUS JOB INFORMATION TESTS FOR MEASURING THE KNOWLEDGE OF CIVILIAN EMPLOYEES AND TRAINEES.

126p.

I. Purpose and Populations for Whom Tests Were Intended.

Certain jobs and certain training courses require specific knowledge of some limited field, document, or procedure as a prerequisite. The tests reported here were constructed to meet specific problems of trainee selection and promotion. The particular group for whom each test was intended is indicated in Section III.

TECHNICAL SPECIALTIES.

II. Sources of Items.

⑩ Edward E. Curiton

Practically all items were original, and were written on the basis of a study of a particular course outline, book, regulation, or other document. However, many of the items of the electricity and radio tests were taken from the central item file.

III. Characteristics of the Tests.

In general, each of these tests was constructed to cover a specific and definable field. Content validity was determined by checking the item coverage against the outline or document on which each test was based. In general, the conditions of need and of cooperation of the using agencies were such as to render item analysis and statistical validation unfeasible.

A. Elementary Electricity, MA5-H.

1. This test measures the electrical knowledge which a bright and interested high school graduate might be expected to possess in the absence of specific training. It was designed to select trainees for intensive instruction in radio inspection and repair work.

2. The test contains two sample items followed by three parts. Part I is a matching test. For each of 10 pictures the examinee identifies from a set of 15 standard electrical symbols or diagrams the one which corresponds to the object pictured. The pictures and diagrams are on facing pages. Part II is another matching test consisting of 8 definitions and 15 technical words. The examinee identifies the word indicated by each definition. Part III consists of 47 four-choice items. A special answer sheet, not suitable for machine scoring, is provided. There is no time limit, and the score is the total number right on the three parts.

B. Radio Information, TK-3, X-1; TK-4, X-1.

1. This test was designed to measure the background necessary for advanced technical training in radio and radar maintenance.

2. Each form of the test consists of three samples followed by 147 four-choice items. A standard IBM answer sheet is used. Many of the items are based

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on diagrams. Part I of each form consists of 42 items covering receivers and power supplies; Part II, of 45 items covering transmitters and aerials, including micro-wave radiators; Part III, of 60 items covering the basic principles of magnetism, electricity, and electronics. The time limit is 40 minutes for each part, and the score is R - 1/3W.

C. Radio Information, TK-5, X-1; TK-6, X-1.

1. This test is designed to measure the basic knowledge required in practical radio repair work.

2. Each form of the test consists of three samples followed by 120 or 125 four-choice items. A standard IBM answer sheet is used. Part I (35 items in TK-5, X-1; 46 in TK-6, X-1) covers mechanical principles and operations; Part II (85 items in TK-5, X-1; 79 in TK-6, X-1) covers electrical and electronic principles and procedures. Many of the items are based on diagrams or pictures. The time limit is 90 minutes, and the score is R - 1/3W.

D. Electricity and Radio Test, CI-114a.

1. This test is a revision of TK-3, X-1 and TK-4, X-1 based on general reports rather than item analysis. It is slightly easier, as judged by its author, than the earlier tests, and includes a somewhat greater amount of material on basic electrical principles.

2. The test contains one sample item and 149 four-choice items, many of which are based on diagrams. A standard IBM answer sheet is used. The time limit is two hours, and the score is R - 1/3W.

E. QMC Quality Control Test, CI-103a.

1. This test is based on the QMC Inspection Handbook on Sampling for Quality Control. Part I of the test covers the first section of the Handbook; Part II, the second. It is an "open-book" test; each examinee is to use a copy of the Handbook as he takes it. It covers the knowledge ordinarily required by supervisors of sampling inspection procedures.

2. The test consists of one sample item followed by 87 test items, 49 in Part I and 38 in Part II. The items are in four-choice form, and a standard IBM answer sheet is used. There is no time limit, and the score is the number right.

F. QMC Sampling Inspection Test, CI-113a.

1. This test is an abridgment of the QMC Quality Control Test, including only the items which should be understood by individual inspectors. Most of the items are taken directly from the longer test, but a few new ones have been added. The Handbook on which the items are based is not used by examinees during the test.

2. The test consists of one sample followed by 25 four-choice items. It is arranged as a four-page expendable booklet. The time limit is 20 minutes, and the score is R - 1/3W.

G. Shoe Inspection Test, INF-1 (CI-080a).

1. The items of this test were constructed on the basis of a detailed job analysis of the duties of a Quartermaster Corps shoe inspector, and conferences with a number of supervisory inspectors. It covers the technical knowledge possessed by the better trained and more experienced inspectors.

2. The test consists of one sample item and 60 four-choice test items. Each item may have more than one right answer. The number of right answers per item varies from one to three. There are 102 right answers all together, out of a possible 240. The most general form of the formula for correction for chance is: $\text{Score} = R - rW/(n-r)$, where r is the total number of right answers and n is the total number of answers. Applying this formula to the test as a whole, the scoring formula would be $R - 102W/138$; so the formula adopted was $R - 3/4W$. A special IBM answer sheet is used with this test. There is no time limit.

H. Steel Drum Inspection Test, CI-104a.

1. This test covers the materials of a special course given by the Quartermaster Corps Inspection Agency on the inspection of steel drums after reclamation.

2. The test consists of an expendable mimeographed booklet containing one sample item and 24 four-choice test items. The time limit is 15 minutes, and the score is the number right.

I. Vendor's Shipping Document Test (QMC Edition), CI-111a.

1. This test covers the information required in using the Vendor's Shipping Document, as given in ASF Manual M-410 and supplementary training material issued by the Office of the Quartermaster General.

2. The test contains two sample items and 90 four-choice test items. A standard IBM answer sheet is used. There is no time limit, and the score is the number right.

J. War Department Shipping Document Test, CI-100a.

1. This test covers the information required in using the War Department Shipping Document, as given in ASF Manuals M-401 and M-403.

2. The test contains one sample item and 94 four-choice test items. A standard IBM answer sheet is used. There is no time limit, and the score is the number right.

K. War Department Shipping Document Test (LSD Transportation Edition), CI-141

1. This is an abridgment and revision of CI-100a, covering only the operations used in the Transportation Division at the Lexington Signal Depot, as determined by a job analysis.

2. The test contains one sample item and 77 four-choice test items. A standard IBM answer sheet is used. There is no time limit, and the score is the number right.

L. War Department Shipping Document Test (LSD Shipping Edition), CI-140a.

1. This test is an abridgment and revision of CI-100a, covering only the operations used in the Shipping Division at the Lexington Signal Depot, as determined by a job analysis.

2. The test contains one sample item and 52 four-choice test items. A standard IBM answer sheet is used. There is no time limit, and the score is the number right.

M. Warehouse Operations Test, CI-116a (Checkers), CI-117a (Packers), and CI-120a (Storekeepers).

1. These tests cover the information needed by Checkers, Packers, and Storekeepers in Quartermaster Depot and ASF Depot warehouses. They are based on ASF Manual M-402 and various Quartermaster Corps operation manuals and training manuals.

2. Each test contains one sample item and a number of four-choice test items (Checkers test, 51; Packers test, 48; Storekeepers test, 85). Standard IBM answer sheets are used. The tests are untimed, and the score in each case is the number right.

N. Civilian Payroll Clerk Test, CI-119a.

1. All of the items of this test are based on Civilian Personnel Regulation No. 120, "Payment of Civilian Personnel," and Changes No. 1, 2, and 3.

2. The test contains one sample item and 72 four-choice test items. A standard IBM answer sheet is used. There is no time limit, and the score is the number right.

IV. Summary Comments.

1. Most of these tests were used in only one program or at only one installation. A few were more widely used, however.

2. While no definite validation studies were made, rough comparisons of scores with supervisors' ratings made at several installations indicated that the tests, for the most part seemed reasonably valid.

3. Changes in the courses, documents, and procedures on which these tests are based have since rendered most of them obsolete.

V. Technicians.

<u>Test</u>	<u>Author(s)</u>
Elementary Elec. MA5H	Raymond A. Katzell & R. W. M. Travers
Radio Inf TK-3 and 4 (X-1)	E. E. Curton and Kenneth Ashcraft
Radio Inf TK-5 and 6 (X-1)	Kenneth Ashcraft
Elec. and Radio CI-114a	Robert F. Earhart
QMC Qual. Control CI-103a	James D. Teller
QMC Sampling Insp. CI-113a	James D. Teller
Shoe Inspection INF-1	Walter N. Durost
Steel Drum Inspec. CI-104a	James D. Teller

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