

TEST SCORING

INSTRUCTOR'S GUIDE

**IRT SUPPORT & DATA CENTER
SERVICES**

California State, University San Bernardino

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TEST SCORING

INTRODUCTION

Test scoring is the short name for CSUSB's system for machine scoring of academic tests. Using it requires that the test consist of multiple choice questions, and that each student mark their answers on a special form.

The test scoring system provides a printed list of student's names and test scores. Statistical information will be provided when requested. It also provides for electronic mail delivery or diskette reporting of the test results. There will be a 24 hour turn around.

Test scoring is designed to support standard NCS answer sheets: TRANS-OPTIC* by NCS MB30423:90. These forms can be purchased in the bookstore. It is important to adhere to this answer sheet, otherwise it will not be possible to use the test scoring system.

REQUIRED

A test may contain up to 160 questions. Each question must have only 1 correct answer out of 1-to-5 possible choices. Student names must be limited to 9 letters or less. Student ID numbers may have no more than 9 digits.

TEST ANSWER KEY REQUIREMENTS

1. A test answer key prepared as follows:
 - A. Use a general purpose NCS answer sheet (TRANS-OPTIC MB30423:90).
 - B. For *name*, code in ANSWER KEY (making sure to start with the first box).
 - C. Mark 1 under *grade or education*.
 - D. Code in all zeros "000000000" for *identification number*.
 - E. The correct answer to each question must be marked. If you wish to delete a particular question from all scoring activity, do not mark any answer for it. Questions left blank on the answer key have no effect on scores, but are still reported in the item analysis.

STUDENT ANSWER SHEET REQUIREMENTS

1. Only a number 2 pencil is acceptable.
2. Fill in the name and the corresponding bubbles.

3. The student ID number and corresponding bubbles are coded in the *identification number* area.
4. Code in *grade or education* with the version number of the test.
5. Answer each question on the test by marking the circle corresponding to it. Blacken one bubble per row only, or the sheet will be rejected.

I

WHAT IS RETURNED TO THE INSTRUCTOR

1. The request sheet.
2. Depending on the report options selected, the following may be produced:
 - A. Frequency distribution
 - B. Histogram
 - C. Item analysis
 - D. Individual result sheets
3. Depending on the distribution options selected, the following may be distributed:
 - A. Answer sheets and answer key
 - B. Diskette
 - C. E-mail

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STATISTICAL

INFORMATION SPLIT-HALVES RELIABILITY

Among the basic statistics, computed automatically for each test, is a somewhat less common statistic called split-halves reliability. It is a corrected correlation coefficient computed from the two numbers in the *split-halves* column of the list of scores. This method checks for internal consistency by examining one-half of the results and comparing them to the other half. A value of "1" implies perfect reliability. A value of "0" implies the test is worthless.

The statistic is computed by splitting the test in two halves; the even-numbered questions, and the odd-numbered questions. These halves are computed, and scored separately. Assuming the two halves are "equivalent" versions of the same test, the correlation coefficient of these two half scores gives the reliability of the half-test. The Spearman-Brown correction formula is then applied to estimate the reliability of the whole test.

ITEM ANALYSIS

The basic information provided by the item analysis is the distribution of answers given to each question. The students are divided into three groups based on their total scores: A.

The upper 27%

B. The middle 46%

C. The lower 27%

For each question, the numbers in each group marking: A through E or leaving it blank are tabulated and printed. The answer from the answer key is marked with an asterisk.

The left column displays the overall percentages of students getting the right answer and those leaving the question blank.

The right column displays the discrimination index in its original form and in percentage form. The discrimination index gives a simple measure of the relative performance of the upper twenty-seven percent of the students versus the lower twenty-seven percent.

HOW TO FILL OUT THE TEST SCORING REQUEST

INTRODUCTION

Items 1 through 4 must be completed for the test to be graded. Otherwise the test will be returned to the requester.

I. REQUESTER INFORMATION

1. Fill in the instructors name, phone number, and date.
2. Fill in the current term: YYT (YY=year, T-term, i.e. [winter=1, spring=2, summer= , fall=4])
3. Fill in the departments abbreviation, course number, and section number.

II. TEST INFORMATION

1. Fill in the number of sheets enclosed.
2. Fill in the test number. This is to assist you in keeping track of your tests.
3. Fill in the number of questions on the test.
4. Fill in the version number of the test. Version one is always the basic test. Additional versions are coded version 2 or version 3 in the *grade or education* field. See the following example:

TEN QUESTIONS AND THREE VERSIONS:

VERSION 1: Basic test questions starting with
number 1. VERSION 2: 10-1
VERSION 3: 2,4,6,10-7,1,3,5

RESULTING ORDER OF THE

QUESTIONS: VERSION 1:
1,2,3,4,5,6,7,8,9,10 VERSION 2:
10,9,8,7,6,5,4,3,2,1 VERSION 3:
2,4,6,10,9,8,7,1,3,5

The answer key, points group assignments, etc. apply to version one directly. Translations for the other version occur automatically.

III. PROCESSING OPTIONS

1. Specify Scoring

Y Raw scores are computed as specified.

Each question must belong to a P-group (points group). These are the number of points to be added to the raw score for a right answer to a question in the Pgroup, the number to be subtracted for a wrong answer, and the number to be subtracted for a blank answer. The default is one point for a right answer and zero otherwise. The instructor may create additional P-groups.

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CODE THE FOLLOWING FOR ADDITIONAL P-GROUPS:

A, B, C, X-Z.

- A is the points to be scored for the right answer, followed by a comma
- B is the points to be deducted for wrong answers, followed by a comma
- C is the points to be deducted for an answer left blank, followed by a comma
- X-Z are the question numbers this scoring applies to

EXAMPLE- AN EXAM WITH TWENTY-ONE QUESTIONS:

P-GROUP TWO: 2.5,1.0,0.0,1-5.

P-GROUP THREE: 5,0,0,6-10,12-17.

RESULTS:

POINTS AWARDED FOR RGT WRG BLANK ANSWERS TO QUESTIONS

| | | | | |
|----------------|-----|---|---|---------------------------------|
| P-GROUP ONE: | 1 | 0 | 0 | 11,18,19,20,21 |
| P-GROUP TWO: | 2.5 | 1 | 0 | 1,2,3,4,5 |
| P-GROUP THREE: | 5 | 0 | 0 | 6,7,8,9,10,11,12,13,14,15,16,17 |

N - Raw score is computed by awarding one point for each right answer. **2. Rescale Scores To 100**

Y - Raw scores are converted to percent scores.

N - Raw point scores are used.

3. Round Scores

* - Total scores are rounded to the nearest whole.

N - Total scores are given as calculated.

4. Compute Specified Subtotals

Y - Score subtotals are to be computed.

Subgroups (S-groups) are totaled and a score to each subgroup is calculated.

Initially, all questions are assigned to S-group one. Any one question can exist in only one S-group. However, many S-groups can be created. To do this complete item 4 in section III on the request form as shown in the example:

EXAMPLE FOR A TEST OF THIRTY QUESTIONS:

S-GROUP TWO: 11-20.

S-GROUP THREE:

21-30. RESULT:

Subtotals will be calculated for the first ten questions, the middle ten questions, and the last ten questions.

N - No subtotals are computed.

IV. REPORT OPTIONS



1. Print Frequency Distribution Of Scores

Y - A list of scores are printed, showing each score's frequency. **N** - No frequency distribution is produced.

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2. Print Histogram: Of Scores

Y - A histogram of correct answers is printed, utilizing scores reported as the percentage correct, with an interval of 5%.

N - No histogram is printed.

3. Print Item Analysis

***** - Print an item analysis for the questions on this test. (See page 3 for explanation)

• - No item analysis is printed.

4. Print Individual Results

• - Prints a result sheet for each student showing; their answers, how they were scored, their total scores, percentile rank, class average, etc.

• - Prints a single list with student ID numbers and scores.

5. Show Test Version On The Printout For The Students

Y - Each student's test version is shown on the individual printout. **N** - Test version is not shown on individual printout.

6. Show Correct Answers On Result Sheets

***** - Wrong answers are marked with the correct answer on the student result sheet.

N - Wrong answers are marked with X's.

.Y. DISTRIBUTION

1. Return Answer Sheets

Y - The answer sheets will be returned to you. You can pick them up personally or have them sent to you through campus mail. If you do not indicate which option, they will be held for ten days for you to pick up. After this time, they will be destroyed. If you send a student to pick up your tests, please call first. This will prevent us from giving the tests to someone without your authorization.

N - The answer sheets will be destroyed.

2. Multiple Marks On Answer Sheet

Erase Answer - The question will be scored as a wrong answer.

Pull Sheet - The answer sheet will not be scored by the program. 3.

Floppy Disk Creation

***** - If desired, please supply the disk. 3 1/2" or 5 1/4" diskette MS-DOS format only.

• - Floppy disk will not be created.

4. E-mail

- The results will be E-mailed to the address you supply. N - No results will be E-mailed.