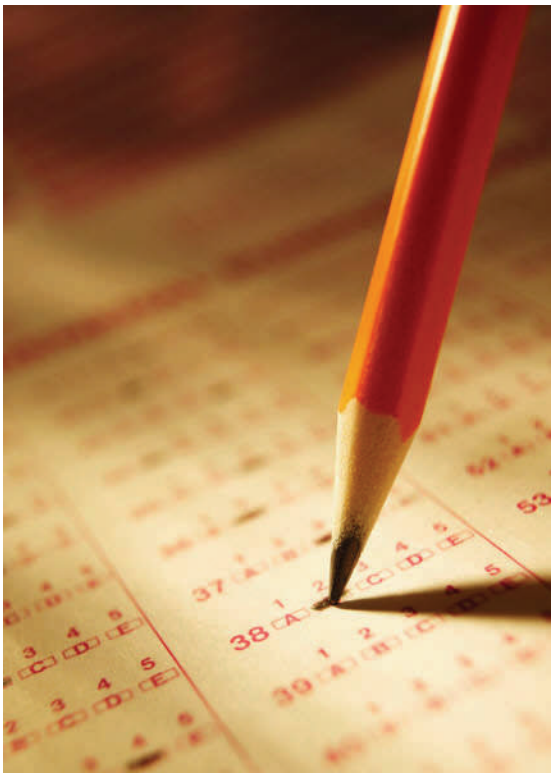
Optically Scanned Tests, Surveys and Evaluations

Revised Jan. 24, 2008



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The Remark Classic OMR version 2.5 software package from NCS Pearson is the program we use to grade tests, tally surveys and evaluations. This booklet will outline the various reports available for testing, surveys and evaluations. NCS Pearson OpScan 3 dual side pencil read head is the machine we use for optical scanning of forms.

It is important to note **you must use a #2 pencil only** for bubbling-in the answers on the form. If a pen is used instead of a pencil, the answer is ignored in the scanning process but it does affect the mathematical results in the reports given. A 100 point bubble-in answer sheet is available to you at AMPS. Samples of other forms from NCS Pearson are available and can be ordered for your department if you should need a different form.

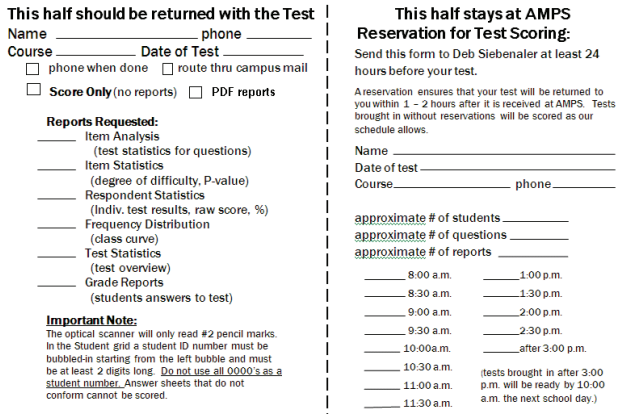
The answer form can be purchased individually or by a 500 count box. Your budget will be billed for the amount you request.

You are strongly encouraged to make a reservation for test scoring as far in advance as possible, even if the test is to be scored only, no reports. This reservation ensures your test will be returned to you within 1-2 hours after it is received at AMPS. Tests brought in without reservations will be scored as our schedule allows. The bright pink reservation forms are available at AMPS and the information such as your name, phone, course name, date and time the test will be brought in, as well as the various reports you might want should be indicated. Reports can be sent to you as a PDF file or they can be printed. Return the pink forms to AMPS as soon as possible.

I hope this booklet will help in your understanding of the reports available for tests, survey and evaluations. If you need more information, please call Deb at 3162 with any questions you may have.

Steps for Test Scoring:

Test Reservation form: Make a reservation (bright pink form) with AMPS for scoring—indicating date and time of test and which reports you would like. PDF reports can be emailed if you choose to use this option.



This half should be returned with the Test

Name _____ phone _____
Course _____ Date of Test _____
☐ phone when done ☐ route thru campus mail
☐ **Score Only** (no reports) ☐ **PDF reports**

Reports Requested:
_____ Item Analysis
(test statistics for questions)
_____ Item Statistics
(degree of difficulty, P-value)
_____ Respondent Statistics
(Indiv. test results, raw score, %)
_____ Frequency Distribution
(class curve)
_____ Test Statistics
(test overview)
_____ Grade Reports
(students answers to test)

Important Note:
The optical scanner will only read #2 pencil marks. In the Student grid a student ID number must be bubbled-in starting from the left bubble and must be at least 2 digits long. Do not use all 0000's as a student number. Answer sheets that do not conform cannot be scored.

This half stays at AMPS
Reservation for Test Scoring:

Send this form to Deb Siebenaler at least 24 hours before your test.

A reservation ensures that your test will be returned to you within 1 – 2 hours after it is received at AMPS. Tests brought in without reservations will be scored as our schedule allows.

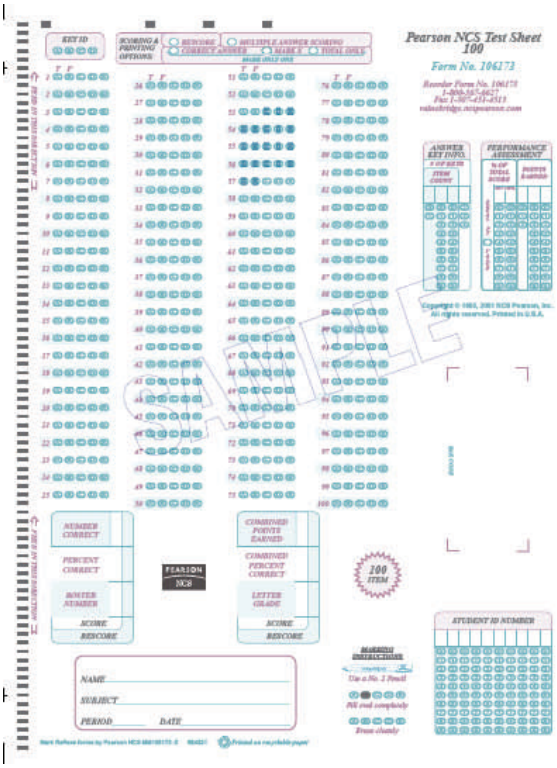
Name _____
Date of test _____
Course _____ phone _____

approximate # of students _____
approximate # of questions _____
approximate # of reports _____

_____ 8:00 a.m.
_____ 8:30 a.m.
_____ 9:00 a.m.
_____ 9:30 a.m.
_____ 10:00a.m.
_____ 10:30 a.m.
_____ 11:00 a.m.
_____ 11:30 a.m.
_____ 1:00 p.m.
_____ 1:30 p.m.
_____ 2:00 p.m.
_____ 2:30 p.m.
_____ after 3:00 p.m.

(tests brought in after 3:00 p.m. will be ready by 10:00 a.m. the next school day.)

Answer key: Using a **#2 pencil,** bubble in the correct answers only. DO NOT fill in any other bubbles on the answer key. In the lower left name box on the test form/answer key fill in as follows: for the name put your name; subject line should have your course, course number and **answer key** written in, and the date line the date. The correct responses should be the only things bubbled in, the other necessary codes will be entered by AMPS.



Multiple answers: A question with multiple answers can be dealt with by this program. The mathematical

computations are adjusted for this situation. If you use the **Grade Report** printout it will indicate what the individual student answered in this situation so you would not have to look at each answer sheet.

Student Answer sheets: Responses must be bubbled-in using a #2 pencil only and no bending, folding or stapling of these forms. Erasures must be complete and as cleanly as possible. Comments can be made on the various forms if it has a designated area for this purpose. Stray marks should be avoided as they will interfere with the optical scanning part of the process. The lower left name box should be completed as indicated. In the lower right hand corner is the Student ID Number box. Here the student enters an identifying number which is used in the reports for the test. This number should start in the first row on the left and contain no spaces. Some faculty use the last four digits of the student's Social Security number as an identifier while others assign a specific number for the student to use. Others use the student ID number from their University ID cards. DO Not use 0000 combination for an identifying number.

When AMPS receives your key and response sheets, the tests will be scored, the reports can be printed or sent to your email as a pdf file when done. The test can also be placed in your mailbox if you indicated that option on the reservation form.

Steps for Survey and Evaluations:

Important note: test and evaluation forms are not interchangeable.

AMPS should be involved with the planning of the survey or evaluation as early as possible in the process. The demographics, forms, and logistical information can be discussed so the process can run smoothly.

Wither your are doing an exam, survey or evaluation, please do not hesitate to contact Deb Siebenaler at ext. 3162 if you have any questions or concerns.

Example of Item Analysis Report:

Labeled section 5 when sent as pdf report

Test Report - Item Analysis

Item Analysis: Question1

Label	Value	Weight	Frequency	Percent	Point Biserial
A	1	0.00	0	0.00	-
B	***2***	***1.00***	***15***	***93.75***	***0.47***
C	3	0.00	0	0.00	-
D	4	0.00	1	6.25	-0.47
E	5	0.00	0	0.00	-
Total			16	100.00	

Item Analysis: Question2

Label	Value	Weight	Frequency	Percent	Point Biserial
A	1	0.00	2	12.50	0.11
B	***2***	***1.00***	***13***	***81.25***	***0.06***
C	3	0.00	1	6.25	-0.25
D	4	0.00	0	0.00	-
E	5	0.00	0	0.00	-
Total			16	100.00	

Note: In the actual print-out the correct answer will be printed in red so your answer key will be indicated in this report. Also the default setting for the print-out has label, value, frequency, and percent. If you want weight and the point biserial report added to the print-out , you must let AMPS know when you schedule the running of your test.

Item Analysis Report:

The Item Analysis provides an in-depth look at individual question statistics. Each item displays in a separate table. The following table describes the statistics that are displayed:

Statistic	Description
Label	The output label designated in the template.
Value	The corresponding numeric value for each output label.
Weight	The points assigned to correct, incorrect and missing responses. The weight statistic applies to grading only.
Frequency	The number of times a particular label was chosen (appears in the data set).
Percent	The corresponding percentage of the frequency.
Point Biserial	A measurement of the discrimination of an item. It indicates the relationship between a response for a given item and the overall test score of the respondent. A high value indicates that students scoring well on the test chose this response. The point biserial statistic applies to grading only.
Total	The sum of the frequencies and percentages.

Example of Item Statistic Report:

Labeled section 4 when sent as pdf report

NOTE: P value is degree of difficulty

Test Report - Item Statistic

Item Statistics:

	q1	q2	q3	q4
Sample Size	65	67	68	69
Number Missing	4	2	1	0
Mean	1.17	2.18	1.60	3.94
Variance	0.14	1.21	0.60	0.06
Standard Deviation	0.38	1.10	0.78	0.24
Standard Error	0.05	0.13	0.09	0.03
Minimum	1.00	1.00	1.00	3.00
Maximum	2.00	4.00	3.00	4.00
Median	1.00	2.00	1.00	4.00
Range	1.00	3.00	2.00	1.00
Sum	76.00	146.00	109.00	272.00
Sum of Squares	98.00	398.00	215.00	1076.00
Skewness	1.81	0.41	0.83	-3.87
Kurtosis	1.30	-1.17	-0.82	13.34
T Value	24.95	16.22	17.05	139.10
Mean Abs. Dev.	0.28	0.94	0.69	0.11
Percentile (25)	1.00	1.00	1.00	4.00
Percentile (50)	1.00	2.00	1.00	4.00
Percentile (75)	1.00	3.00	2.00	4.00
Inter Qrt. Range	0.00	2.00	1.00	0.00
Con. Interval (1%)	1.05	1.83	1.36	3.87
Con. Interval (5%)	1.08	1.91	1.42	3.89
Con. Interval (95%)	1.26	2.45	1.79	4.00
Con. Interval (99%)	1.29	2.53	1.85	4.02
P Value	0.78	0.20	0.57	0.94
Point Biserial	0.40	0.08	0.49	0.58

Note: According to the software company, the P value is the “old degree of difficulty “ report.

Item Statistics Report

The Item Statistics report allows you to choose specific variables from your data and then reports various statistics for that particular variable. The following table summarizes these statistics:

Statistic	Description
Sample Size	The total number of forms in the data set(s).
Number Missing	The number of responses that are missing (blank).
Mean	The average of the values in the population.
Variance	A measure of how spread out a distribution is. It is computed as the average squared deviation of each number from its mean.
Standard Deviation	A statistic used to characterize the dispersion among the measures in a given population. It is calculated by taking the square root of the variance.
Standard Error	The standard deviation of the sampling distribution of that statistic. Standard errors reflect how much sampling fluctuation a statistic will show.
Minimum	The minimum value in a range.
Maximum	The maximum value in a range.
Median	The middle of a distribution: half the values are above the median and half are below the median.
Range	The distance between the maximum and minimum value.
Sum	The sum of the frequency of the labels multiplied by their corresponding value.

Item Statistic Report cont.

Sum of Squares	The sum of the frequency of the labels multiplied by their corresponding value squared.
Skewness	A measure of the symmetry or lack of it in a set of data as evident from the shape of the distribution. A distribution is symmetric if the left half of the graph of the distribution is the mirror image of the right half. If a distribution is skewed to the right (positive skewness) the mean is greater than median, which in turn is greater than the mode, in which case the skewness coefficient is greater than zero. If a distribution is skewed to the left (negative skewness) then the relationship is reversed, in which case the coefficient is less than zero. If there is no skewness or the distribution is symmetric like the bell-shaped normal curve then the mean = median = mode.
Kurtosis	Kurtosis is based on the size of a distribution's tails. Distributions with relatively large tails are called "leptokurtic"; those with small tails are called "platykurtic". A distribution with the same kurtosis as the normal distribution is called "mesokurtic."
T-Value	A measure on a random sample (or pair of samples) in which a mean (or pair of means) appears in the numerator and an estimate of the numerator's standard deviation appears in the denominator. The latter estimate is based on the calculated s square or s squares of the samples. If these calculations yield a value of (t) that is sufficiently different from zero, the test is considered to be statistically significant.
Mean Absolute Deviation	A measure of variation, which calculates the average distance a data value is from the mean.

Item Statistic Report cont.

Percentile (25, 50 & 75)	Percentiles are values that divide a sample of data into one hundred groups containing (as far as possible) equal numbers of observations. For example, 25% of the data values lie below the 25th percentile.
Inter Quartile Range	The difference between the 75th percentile and the 25th percentile.
Confidence Intervals	A confidence interval gives an estimated range of values that is likely to include an unknown population parameter, the estimated range being calculated from a given set of sample data. If independent samples are taken repeatedly from the same population, and a confidence interval calculated for each sample, then a certain percentage (confidence level) of the intervals will include the unknown population parameter. Remark Classic OMR calculates Confidence Intervals of 1%, 5%, 95% and 99%.
P Value (degree of difficulty).	According to the software company, this is the "old" degree of difficulty . The probability of getting a value of the test statistic as extreme as or more extreme than that observed by chance alone, if the null hypothesis H0, is true. It is the probability of wrongly rejecting the null hypothesis if it is in fact true. The P Value statistic applies to grading only.
Point Biserial	A measurement of the discrimination of an item. It indicates the relationship between a response for a given item and the overall test score of the respondent. A high value indicates that students scoring well on the test chose this response. The point biserial statistic applies to grading only.

Example of Respondent Statistics Report::

Labeled section 2 when sent as pdf report

Test Report - Respondent Statistics

Respondent Statistics:

Respondent	Grade	Total Score	Percent Score	Z Score	T Score	ETS Score	Dev. IQ	Percentile	Number Correct	Number Incorrect	Number Missing
89 ***	C	10.00	76.92	-0.81	41.88	418.81	87.82	10	10	2	1
89 ***	B	11.00	84.62	-0.05	49.45	494.51	99.18	24	11	1	1
89 ***	B	11.00	84.62	-0.05	49.45	494.51	99.18	24	11	2	0
91 ***	B	11.00	84.62	-0.05	49.45	494.51	99.18	24	11	2	0
91 ***	B	11.00	84.62	-0.05	49.45	494.51	99.18	24	11	2	0
91 ***	A-	12.00	92.31	0.70	57.02	570.22	110.53	59	12	1	0
91 ***	A-	12.00	92.31	0.70	57.02	570.22	110.53	59	12	1	0
92 ***	A-	12.00	92.31	0.70	57.02	570.22	110.53	59	12	1	0
89 ***	B	11.00	84.62	-0.05	49.45	494.51	99.18	24	11	2	0
92 ***	C	10.00	76.92	-0.81	41.88	418.81	87.82	10	10	3	0
90 ***	B	11.00	84.62	-0.05	49.45	494.51	99.18	24	11	1	1
92 ***	A-	12.00	92.31	0.70	57.02	570.22	110.53	59	12	1	0
89 041	A-	12.00	92.31	0.70	57.02	570.22	110.53	59	12	1	0
92 ***	D+	9.00	69.23	-1.57	34.31	343.10	76.46	4	9	4	0
91 ***	A-	12.00	92.31	0.70	57.02	570.22	110.53	59	12	1	0
92 ***	B	11.00	84.62	-0.05	49.45	494.51	99.18	24	11	2	0
92 ***	A-	12.00	92.31	0.70	57.02	570.22	110.53	59	12	1	0
91 ***	A-	12.00	92.31	0.70	57.02	570.22	110.53	59	12	1	0
89 ***	A-	12.00	92.31	0.70	57.02	570.22	110.53	59	12	1	0
90 ***	A-	12.00	92.31	0.70	57.02	570.22	110.53	59	12	1	0
90 ***	A+	13.00	100.00	1.46	64.59	645.93	121.89	94	13	0	0
90 ***	A-	12.00	92.31	0.70	57.02	570.22	110.53	59	12	0	1
90 ***	C	10.00	76.92	-0.81	41.88	418.81	87.82	10	10	3	0
90 ***	C	10.00	76.92	-0.81	41.88	418.81	87.82	10	10	3	0
90 ***	A-	12.00	92.31	0.70	57.02	570.22	110.53	59	12	1	0
90 ***	B	11.00	84.62	-0.05	49.45	494.51	99.18	24	11	2	0
90 ***	A-	12.00	92.31	0.70	57.02	570.22	110.53	59	12	1	0
90 ***	B	11.00	84.62	-0.05	49.45	494.51	99.18	24	11	2	0
MULT ***	B	11.00	84.62	-0.05	49.45	494.51	99.18	24	11	2	0

Respondent Statistics Report

The Respondent Statistics node provides a variety of statistics based on the current grade operation. By default, the Grade, Total Score and Percent Score for each student is displayed. The following table summarizes all of the available statistics:

Statistic	Description
Respondent	Student identifying number.
Grade	Letter grade for the test.
Total Score	Total score for the test.
Percent Score	Corresponding percent score for the test.
Objective Score	If using subjective score(s), the score for the objective portion of the test can be displayed separately.
Subjective Score	If using subjective score(s), the score for the subjective portion of the test can be displayed separately.
Z Score	The standard normal distribution is sometimes called the z distribution. A z score reflects the number of standard deviations above or below the mean a particular score represents.
T Score	Standard score having a mean of 50 and a standard deviation of 10 (T=10z+50).
ETS Score	Score used by Educational Testing Service that has a mean of 500 and a standard deviation of 100 (ETS=100z+500).
Deviation IQ	Standard score having a mean of 100 and a standard deviation of 15 (DIQ=15z+100).
Number Correct	The number of correct responses.
Number Incorrect	The number of incorrect responses.
Number Missing	The number of responses that are missing.

Example of Frequency Distribution Reports:

Labeled section 3 when sent as pdf report

Test Report - Frequency Distribution

Frequency Distribution:

Grade	Percent Score	Frequency
A+	97.00 - 100.00	5
A	93.00 - 96.99	0
A-	90.00 - 92.99	24
B+	87.00 - 89.99	0
B	83.00 - 86.99	24
B-	80.00 - 82.99	0
C+	77.00 - 79.99	0
C	73.00 - 76.99	9
C-	70.00 - 72.99	0
D+	67.00 - 69.99	4
D	63.00 - 66.99	0
D-	60.00 - 62.99	1
F	0.00 - 59.99	2

Frequency Distribution Reports:

The Frequency Distribution report illustrates the dispersion of students over the selected interval. The table displays the selected interval, the start range, the end range and the number of students that fall within that range.

Example of Test Statistics Report::

Section 1 when sent as pdf report

Test Report - Test Statistics

Test Statistics:

Statistic	Value
Number of Tests Graded	69
Number of Graded Items	13
Total Points Possible	13.00
Maximum Score	13.00
Minimum Score	6.00
Median Score	11.00
Range of Scores	7.00
Percentile (25)	11.00
Percentile (75)	12.00
Inter Quartile Range	1.00
Mean Score	11.07
Variance	1.74
Standard Deviation	1.32
Confidence Interval (1%)	10.66
Confidence Interval (5%)	10.76
Confidence Interval (95%)	11.39
Confidence Interval (99%)	11.49
Kuder-Richardson Formula 20	0.45
Coefficient (Cronbach) Alpha	0.36
Mean Percent Score	85.17

Test Statistics Report:

The Test Statistics report provides an overview of the test results, contained in one table.

Statistic	Description
Number of Tests Graded	The total number of tests that were graded.
Number of Graded Items	The number of items on the test that were graded.
Total Points Possible	The total number of points on the test.
Maximum Score	The highest score from the graded tests.
Minimum Score	The lowest score from the graded tests.
Median Score	The median of the scores from the graded tests.
Range of Scores	The range is the distance between the highest and lowest score.
Percentile (25 and 75)	Percentiles are values that divide a sample of data into one hundred groups containing (as far as possible) equal numbers of observations. For example, 25% of the data values lie below the 25th percentile.
Inter Quartile Range	The difference between the 75th percentile and the 25th percentile.
Mean Score	The average score of all of the graded tests.
Variance	The amount that each score deviates from the mean squared (by multiplying it by itself).

Test Statistics Report: cont.

Standard Deviation	A statistic used to characterize the dispersion among the measures in a given population. It is calculated by taking the square root of the variance.
Confidence Interval (1, 5, 95 and 99%)	A confidence interval gives an estimated range of values that is likely to include an unknown population parameter, the estimated range being calculated from a given set of sample data. If independent samples are taken repeatedly from the same population, and a confidence interval calculated for each sample, then a certain percentage (confidence level) of the intervals will include the unknown population parameter. Remark Classic OMR calculates Confidence Intervals of 1%, 5%, 95% and 99%.
Kuder-Richardson Formula 20	An overall measure of internal consistency.
Coefficient (Cronbach) Alpha	A coefficient that describes how well a group of items focuses on a single idea or construct.

Example of Grade Report::

Labeled section 6 when sent as pdf report

Test Report - Grade Report

Grade Report: 1221 ***

Test		Grade	Percent Score	Total Score
Overall		C	76.92	10.00
Test Statistics				
Tests Graded	High Score	Low Score	Mean Score	Median Score
69	13.00	6.00	11.07	11.00
Incorrect Responses				
[q1] BLANK	[q8] usually		[q9] No	

Grade Report: 4221 ***

Test		Grade	Percent Score	Total Score
Overall		B	84.62	11.00
Test Statistics				
Tests Graded	High Score	Low Score	Mean Score	Median Score
69	13.00	6.00	11.07	11.00
Incorrect Responses				
[q1] BLANK	[q2] sr			

Grade Report::

The Grade Report provides a detailed student grade report for each student included in the grade operation. The report provides a table of the basic statistics as well as each individual students incorrect responses for the exam. The following options can be included in the reports:

Statistic	Description
Grade Report	Student Identifying number.
Grade	Letter grade for the test.
Percent Score	Corresponding percent score.
Total Score	Total raw score.
Number of Tests Graded	The total number of tests graded.
High Score	The highest score of all of the graded tests.
Low Score	The lowest score of all of the graded tests.
Mean Score	The average score of all of the graded tests.
Median Score	The middle most value when all the scores are arranged in numeric order (ascending or descending).
Incorrect Responses	Incorrect question and individual student response is indicated.

Survey and Evaluation Component:

Two reports are available for the survey and evaluation portion of the Remark program and they are Item Analysis and Item Statistics. Bubble sheets for testing purposes should not be used for surveys and evaluations. The Secretary to the Academic Vice President distributes the forms for the University Teacher Evaluations. There are several forms available from NCS Pearson for surveys and evaluations and samples are available in AMPS. If you require a special form, please keep in mind they will have to be ordered so allow that factor in your time frame for your project.

Again, responses must be bubbled-in using a **#2 pencil only** and no folding, bending, or stapling of these forms. Erasures must be complete and no stray marks. Areas for comments are indicated on the sheets and comments should not go outside the area as this will affect the scanners ability to “read” the forms.

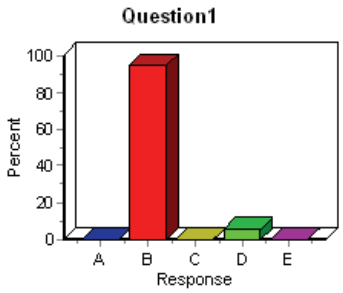
Example of Survey/Evaluation Item Analysis

Report: Labeled section 2 as pdf report

Survey/Eval Report - Item Analysis

Item Analysis: Question1

Label	Value	Frequency	Percent	Cumulative Percent	Valid Percent	Cumulative Valid Percent
A	1	0	0.00	0.00	0.00	0.00
B	2	16	94.12	94.12	94.12	94.12
C	3	0	0.00	94.12	0.00	94.12
D	4	1	5.88	100.00	5.88	100.00
E	5	0	0.00	100.00	0.00	100.00
Total Valid		17	100.00		100.00	



Note: the default setting for the print-out has label, value, frequency, and percent. If you want the cumulative percent, valid percent and cumulative valid percent in your reports, you must let AMPS know when you schedule the running of your survey or evaluation.

Survey/Evaluation Item Analysis Report::

The Item Analysis report provides an in-depth look at individual question statistics. Each item displays in a separate table. The following table describes the statistics that are displayed:

Statistic	Description
Label	The output label designated in the template.
Value	The corresponding numeric value for each output label.
Frequency	The number of times a particular label was chosen (appears in the data set).
Percent	The corresponding percentage of the frequency.
Cumulative Percent	The sum of the percents from the first response up to and including the current response.
Valid Percent	The percent not including missing items.
Cumulative Valid Percent	The sum of the valid percents from the first response up to and including the current response.
Total	The sum of the frequencies and percentages.

Example of Survey/Evaluation Item Statistic Report:: Labeled section 1 when sent as pdf report

All the various statistic areas and meanings are the same as in the test reports— item statistic report, so please refer to page 9 of this booklet for explanation.

Survey/Eval -Item Statistics

Item Statistics:

	q1	q2	q3	q4
Sample Size	66	68	69	70
Number Missing	4	2	1	0
Mean	1.17	2.19	1.59	3.94
Variance	0.14	1.20	0.60	0.05
Standard Deviation	0.38	1.10	0.77	0.23
Standard Error	0.05	0.13	0.09	0.03
Minimum	1.00	1.00	1.00	3.00
Maximum	2.00	4.00	3.00	4.00
Median	1.00	2.00	1.00	4.00
Range	1.00	3.00	2.00	1.00
Sum	77.00	149.00	110.00	276.00
Sum of Squares	99.00	407.00	216.00	1092.00
Skewness	1.83	0.38	0.86	-3.90
Kurtosis	1.39	-1.19	-0.78	13.60
T Value	25.24	16.48	17.13	141.10
Mean Abs. Dev.	0.28	0.94	0.69	0.11
Percentile (25)	1.00	1.00	1.00	4.00
Percentile (50)	1.00	2.00	1.00	4.00
Percentile (75)	1.00	3.00	2.00	4.00
Inter Qrt Range	0.00	2.00	1.00	0.00
Con. Interval(1%)	1.05	1.84	1.35	3.87
Con. Interval(5%)	1.08	1.93	1.41	3.89
Con. Interval(95%)	1.26	2.45	1.78	4.00
Con. Interval(99%)	1.29	2.54	1.84	4.02