1965

A Correlational and Predictive Study of College Freshmen in a Midwestern University

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A CORRELATIONAL AND PREDICTIVE STUDY

OF COLLEGE FRESHMEN IN A

MIDWESTERN UNIVERSITY

1962

by
J. Dennis Lamping

A Thesis Submitted to the Faculty of the Graduate School

of Loyola University in Partial Fulfillment of

the Requirements for the Degree of

Master of Arts.

August

1965

VITA

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CHAPTER I

INTRODUCTION

Teachers and workers in educational research, school and college admissions work, deans and student counselors, both on the secondary and college level, are frequently faced with the problem of reconciling mental ability ratings of intelligence tests with scores achieved on standardized aptitude and achievement tests such as the School and College Ability Tests (SCAT) and the Scholastic Aptitude Test of the College Entrance Examination Board (SAT). It is commonly recognized that results derived from various measures of intelligence cannot be directly compared to those results attained on the SCAT or SAT, and this is so for a number of reasons:

    a. Different standardization populations.

    b. Different factorial compositions of the test.

    c. Different methods of computing intelligence quotients and standard scores.

Whatever the reasons may be, it is generally agreed that there is need for data that will permit correlation of scores from one test to comparable measures derived from other tests.

Purpose of this Study

The purpose of this study is to determine the correlational and predictive validity of the Hennon-Nelson Intelligence Test, 1961 Revised Edition, College Level, with the School and College Ability Test; the College Board Scholastic Aptitude Test; High School Percentile Rank; and the Freshmen Year Grade Point Average for the 1962 Freshmen Class of Loyola University, Lake Shore Campus.

This study will consider the following questions:

1) What is the correlation between the Hennon-Nelson Test and the School and College Ability Test and the Scholastic Aptitude Test of the College Board?

2) What is the correlation between each one of the three tests and High School Percentile Rank with Freshmen Year Grade Point Average?

3) Which of these is the best predictor of academic success for a student applying for admission to Loyola?

4) What is the predictive validity of the Hennon-Nelson Intelligence Test insofar as scores on the School and College Ability Test and the Scholastic Aptitude Test of the College Board are concerned? Also, what is the predictive validity of the Hennon-Nelson Intelligence Test insofar as Freshmen Year Grade Point Average is concerned?

5) What is the feasibility of using the Henmon-Nelson Intelligence Test for late registrants?

Scope and Limits of This Study

This study, of necessity, will be limited to the 1962 Freshmen Class at Lake Shore Campus, Loyola University, because the Henmon-Nelson was not given to the Freshmen Class at Lewis Towers, Loyola University.

Research Design and Procedures

The type of experimental design used for this study was that of correlational design. The basic design of correlational research is simple -- the collection of two or more scores on the same group of subjects and computing correlation coefficients. Although the design is simple, the amount of labor put forth in collecting the data can, at times, be tedious.

Although all correlational studies are concerned with the discovery and clarification of relationships, they can be broadly classified as either relationship studies or prediction studies depending on their emphasis. The objectives of this thesis would encompass both classifications. As a relationship study, the author directed his research to establishing the degree of relationship between the newly developed or revised Henmon-Nelson Intelligence Test and concurrent criterion measures such as the School and College Ability Tests, the College Board Scholastic Aptitude Test and Grade Point Average. This type of study, known as Concurrent Validity, is often preliminary to predictive validity studies. Having completed the former,

the author thought it highly relevant to complete the work for which he had laid the foundation -- i.e., to use the information gained in his relationship study as a basis for a predictive validity study.

Prediction studies, although aimed at a basic correlational goal of seeking relationships, are usually carried out in areas where a firmer basis of previous knowledge is present than is the case with exploratory relationship studies. Prediction through the use of correlational technique is based on the assumption that at least some of the factors that will lead to the behavior we wish to predict are present and measurable at the time we wish to make the prediction.

Since the nature of this particular predictive study is more complex, the author used multiple correlation and multiple regression equations.

The ideal approach to the determination of equivalent or comparable scores on several different tests is to administer the several tests to the same group of students in such a fashion as to allow for practice effect and within a sufficiently short span of time, so that no appreciable growth in the functions measured takes place between the testings. The many difficulties of this method, particularly in a group large enough to yield dependable results, constitute one of the principle reasons that so few studies of this kind have been made. However, because of the

position at Loyola University which the author held, the aforementioned problems were for all practical purposes eliminated.

Practically every college has an Orientation Week for incoming Freshmen, during which time the new students become familiarized and acquainted with the various facilities which the school has to offer and to learn the names of its various department heads and deans. Loyola also offers this type of program, but it has something more -- Education 001 (or Academic Orientation). This is a non-credit course which is mandatory for all Freshmen and runs for a period of ten to twelve weeks. During one of these weeks, the Henmon-Nelson Test is administered to the Freshmen in the Orientation Class. In this way, the whole Freshmen Class takes the same test within a period of one week. Also, the same group took the College Board Scholastic Aptitude Test and/or the School and College Ability Test within a year previous to the taking of the Henmon-Nelson. The Orientation Class itself is rather a low pressure and casual meeting between the Freshmen and a member of the Dean's Staff and since the Henmon-Nelson is not administered until the sixth week of class, the tone has already been set. Thus, the students enter the test situation just as though it were another Orientation Class. In addition, the students in the class are informed during the first week of class when the test will be and that the results have absolutely no bearing on their tenure at Loyola. At this time, they are also told the results of the test will be made available to them on an individual basis

sometime in the second semester. All of these factors would seem to reduce tension or anxiety to a minimum.

The College Board Scholastic Aptitude Test results and the School and College Ability Test results were procured by the author in the Office of Psychological Services, Loyola University. The results of the Henmon-Nelson Intelligence Test were made accessible to the author through the Orientation Class which was conducted under his auspices. Finally, the Quality Point Averages for the group used in this study were obtained from the Office of the Dean of Arts and Sciences at Loyola University. The author held the position of Assistant to the Dean.

The Henmon-Nelson Intelligence Test was administered to the entire Freshmen Class of 1962 at Lake Shore Campus, Loyola University, in November of 1962. The students were divided into groups of forty to forty-five, who met once a week for the first ten weeks of the semester.

The College Board Scholastic Aptitude and/or the School and College Ability Tests had been taken by this same group within a year previous to the taking of the Henmon-Nelson. The results of these tests were obtained from the various sources in the University, which have already been cited.

Definition of Terms

The following is a list of abbreviations for the subject matter

of this study:

    HNV -- Henmon-Nelson Verbal
    HNQ -- Henmon-Nelson Quantitative
    HNT -- Henmon-Nelson Total

    SV -- School and College Ability Test Verbal
    SQ -- School and College Ability Test Quantitative
    ST -- School and College Ability Test Total

    CBV -- College Board Verbal
    CBM -- College Board Math
    CAR -- College Ability Rating

    GPA -- Grade Point Average

    RIC -- High School Percentile Rank

    "The level of statistical significance of the correlation is
    determined to a great degree by the number of cases upon
    which the correlation is based. For example, with 22 cases,
    a Pearson correlation of .54 is needed to be significant at
    the one per cent level. If we have 100 cases, however, a
    correlation of .25 is significant at the one per cent level,
    and with 1000 cases a correlation of only .08 is significant
    at the one per cent level."[1]

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[1]Walter R. Borg, Educational Research: An Introduction, David
McKay Co., 1963, pp. 281-284.

When the author states that a correlation coefficient is statistically significant, he means that this coefficient is sufficiently high so that you may be reasonably confident that some relationship exists between the variables he has correlated. If the correlation is significant at the one per cent level, it may be interpreted as indicating that there is only one chance in one hundred that the correlation is due to chance errors. As the author has stated above, the correlation coefficient may be significant even though it is quite low if there are a large number of cases. The size of the correlation coefficient is indicative of the degree of relationship between the variables, and a low correlation is significant at the one per cent level.

> "Prediction studies are concerned with the use of correlational techniques to predict certain kinds of future behavior and require higher correlations than those usually found in exploratory relationship studies. In prediction studies, statistical significance is of little consequence because correlations must far exceed this point to be of practical value in most prediction problems."[2]

The following rules are provided by the author for the reader, as a basis for the interpretation of a correlation coefficient obtained in his research:

> "A correlation of .20 to .35 indicates that only four per cent of the variance in the two measures that have been correlated is common to both. Correlations in this range may have limited meaning in exploratory research where relationships are being sought out using crude measures. Correlations at this level, however, are of no value in either individual or group prediction."[3]

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[2] Ibid., pp. 281-284.

[3] Ibid., pp. 281-284.

"Correlations ranging from .35 to .65 are statistically significant beyond the one per cent level. With correlations around .50 crude group predictions may be achieved. As a correlation of .50 between a test and the performance predicted only indicates twenty five per cent common variance, it is obvious that predictions based on a correlation this low can be expected to be frequently in error."[4]

"Correlations ranging from .65 to .85 make possible group predictions that are accurate enough for most purposes. As we move toward the top of the range, group predictions can be made very accurately. Near the top of this correlation range individual predictions can be made that are considerably more accurate than would occur if no such selection procedure were used."[5]

"Correlations at the over .85 level indicate a close relationship between the two variables correlated. A correlation of .85 indicates that the measure used for prediction has about seventy two per cent variance in common with the performance being predicted. Prediction studies in education very rarely yield correlations this high. When correlations at this level are obtained, however, they are very useful for either individual or group predictions."[6]

The purpose of this chapter was not only to explain the author's aims, but also to familiarize the reader with the terms used in this study. In the next chapter, the reader can examine a number of studies which are similar to the author's, thus further acclimating himself to the schema of correlational and predictive studies.

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[4]Ibid., pp. 281-284.

[5]Ibid., pp. 281-284.

[6]Ibid., pp. 281-284.

CHAPTER II

REVIEW OF THE LITERATURE

As far as the author has been able to determine, from his research and also from the correspondence he has carried on over the last year, no research has yet been done on the correlation of the Henmon-Nelson Intelligence Test, 1961, Revised Edition, College Level, and the School and College Ability Test, and/or the College Board Scholastic Aptitude Test, although numerous studies have been found concerning the predictive validity and correlation of the latter two tests. In a letter recently received from Dr. Paul C. Kelso, who along with Dr. M. J. Nelson, is responsible for the 1961 revision of the Henmon-Nelson, the following information was sent:

> "The College Board and the Henmon-Nelson were administered to the Freshmen Class of 1958 in the fall of that year at the State College of Iowa. A correlation study was made with the Grade Point Average achieved by their Freshmen students at the end of the fall semester, 1958-59. The correlations of 864 Freshmen students directly from High School were as follows:
>
> | | |
> |---|---|
> | Henmon-Nelson versus Grade Index | $r_{.49}$ |
> | CEEB Verbal versus Grade Index | $r_{.56}$ |
> | CEEB Math versus Grade Index | $r_{.40}$" |

The studies which are cited in the following pages of this chapter have objectives, methods and/or procedures similar to the author's, but none were found which correlated the same group of tests and achieved the

same results. Thus, the purpose of this chapter is to give the reader
an understanding of the previous work that has been done in the area of
the thesis in order that he will have the insight needed to understand
the thesis and to fit its findings into the overall picture.

Correlational and Predictive Studies:

The study carried on by Anderson and Stegman at Fort Hays Kansas
State College was to determine the validity of a battery of tests used
in the prediction of achievement of students completing the first year
of college work at Fort Hays State College. One of the tests used was
the ACE Psychological Examination for College Freshmen. The test battery
was administered to all entering Freshmen in September, 1949. The Grade
Point Average of the 227 participating students was used as the criterion
for this study. The correlation between the ACE and GPA was .499.[1]

	N	
1st Semester, 1955-56	460	.57
2nd Semester, 1955-56	429	.56

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[1] Mary R. Anderson and Erwin J. Stegman, "Predictions of
Freshmen Achievement at Fort Hays Kansas State College," Educational
and Psychological Measurement, 14 (1954). pp. 722-723.

In 1958, Cannon correlated scores on the College Entrance Examination Board Scholastic Aptitude (SAT) and SCAT for 291 Freshmen and found the following correlations:[2]

SAT Verbal . . . . SCAT Verbal   .79
SAT Math   . . . . SCAT Quantitative .74

Norman S. Endler and Danny Steinberg administered standardized SCAT aptitude and STEP achievement tests to sixty-nine college students, forty-five males and twenty-four females, and these measures were inter-correlated with their grade twelve high school average and first year college average for male and female samples. Male-Female comparisons were made for the level of performance and for the relationship between predictors (HSA and standardized aptitude and achievement tests) and criteria (FGA and individual course grades). Endler and Steinberg reached the following conclusions:

1) The best predictor of FGA and individual college grades was HSA (0.84).

2) Females had a significantly higher Freshmen Year Grade Point Average than males, although they did not differ appreciably on their high school performance and college aptitude (SCAT) Total.

3) Females were more predictable than males in that correlations between predictors and FGA were higher for females than for males.

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[2]D. J. Cannon, "SCAT Validity," (Unpublished study, College of William and Mary, 1959.)

Endler and Steinberg attributed the higher level of performance and the greater predictability of females to the following factors:

a) Females may have been more intrinsically interested in the academic aspects of their courses than males, who perceived their courses as a means to an occupational end.

b) Males may have spent more time on extra-curricular activities and less time on their studies than females.[3]

In a general article on equating scholastic aptitude tests and group intelligence scores, M. D. Engelhart describes the equating of the SCAT Total (administered to first year entering students at a Chicago City Junior College) to the Otis Quick-Scoring Mental Ability Test -- Gamma. The purpose of the equating was to make it possible to use the Otis Gamma in situations where only limited testing time is available. Two groups of entering students (N - 455 and 428) were tested with both tests and correlations of .77 and .81 between the tests were obtained for the two groups.[4]

The effectiveness of the ACE as a predictor of success is the problem of this study. Its authors, Norman B. Henderson and Evelyn Malnag, found that while all studies show a positive correlation between ACE and college success, in none is the correlation between ACE scores and college success high enough to rule out the usefulness of other

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[3]Norman S. Endler and Danny Steinberg, "Prediction of Academic Achievement at the University Level," Personnel and Guidance Journal, 41, No. 8, pp. 694-700.

[4]M. D. Engelhart, "Obtaining Comparable Scores on Two or More Tests," Educational and Psychological Measurement, 19, (1959), pp.55-64.

predictors of success such as high school rank. The correlation between

ACE scores and Grade Point Average was .58. On the basis of all criteria

of college success investigated in this study, the ACE Psychological

Examination for college Freshmen proved to be an effective predictor of

college success. Students who received high scores on the ACE examination

averaged higher Grade Point Averages than those with low examination scores.[5]

In a study made by the authors of the 1961 Revised Edition of the

Henmon-Nelson Intelligence Test, College level, the Henmon-Nelson was

correlated with the Freshmen first semester GPA at Iowa State Teachers

College (N - 95) with 95 Freshmen. The following correlations were found

between the Henmon-Nelson and the GPA.[6]

HNQ -- GPA	.461
HNV -- GPA	.470
HNT -- GPA	.541

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[5]Norman B. Henderson and Evelyn Malnag, "The Predictive Value of the ACE Psychological Examination for Freshmen." California Journal of Educational Research, 10, (1959), pp. 157-166.

[6]Henmon-Nelson Examiner's Manual -- College Level. 1961 Revised Edition. p.15.

Phyllis E. Kennedy obtained SCAT scores, from May through September in July of 1960, from entering Freshmen. She correlated these scores with first semester Grade Point Averages (N - 290). The correlations with first semester Grade Point Averages were as follows:[7]

Verbal   .40   Quantitative   .17   Total   .37

Jacinta M. Mann reported and compared the results of two studies of the validity of the CEEB - SAT and the CSAT - SCAT tests when they are combined with high school rank for predicting first year grades at Seton Hill College, a liberal arts college for women. A random sample of 200 girls were divided into two samples of 100. First year averages were used as the criterion variable. A matter which was noteworthy was the parity between the SAT and SCAT for prediction. Apparently both tests say about the same thing for those who take it.[8]

In a study by W. F. Michaels in 1962, at the University of Southern California, an attempt was made to determine the predictive validity of high school Grade Point Average, verbal scores, math scores and total scores of the SAT of the CEEB relative to a criterion of Grade Point Average earned by 209 men and 233 women during their 1960-61 Freshmen year.

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[7]Phyllis E. Kennedy, "The Predictive Value of SCAT for a Group of College Freshmen," Testing Office Research Reports. San Fernando Valley State College, July, 1960.

[8]Jacinta M. Mann, "The Prediction of Achievement in a Liberal Arts College." Educational and Psychological Measurement, 21, (1921), pp. 481-483.

The findings may be summarized as follows:

1. Consistently, the record of academic achievement in high school has been more predictive of success in college work for both men and women students than have been either part or total scores on the SAT of the CEEB.

2. For both sexes, the verbal score of the SAT has been about as predictive of college success of first year students in liberal arts as has been the total score.[9]

In a study published in the 1962 SCAT supplement, the SAT of the CEEB and the SCAT were correlated. All of the students were in the twelfth grade; they took the SCAT in the fall of 1955 and the SAT in 1956.[10] The following are the results:

N	Test	Mean	Std. Dev.	Correlation
560	SCAT-V	302.73	13.06	.86
	SAT -V	516.79	100.75	

N	Test	Mean	Std. Dev.	Correlation
513	SCAT-Q	313.36	11.65	.78
	SAT -M	538.43	104.41	

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[9]W. B. Michaels, "High School Record and College Board Scores as Predictors of Success in a Liberal Arts Program During the Freshmen Year in College." Educational and Psychological Measurement, 22, (1962), pp. 399-400.

[10]SCAT-STEP Supplement, 1962, Cooperative Test Division, Educational Testing Service, Princeton, New Jersey. pp. 14-15.

In an unpublished study by Sister Mary John Catherine in 1958 at Clarke College, the following relationships were found between the SCAT and SAT. (N - 164 Freshmen).[11]

$$\frac{\text{SAT -V}}{\text{SCAT-V}} = .84 \qquad \frac{\text{SAT -M}}{\text{SCAT-Q}} = .82$$

Having examined the related literature, the reader will next examine in detail the methodology used by the author for purposes of this study.

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[11]Sister Mary John Catherine, "Relationships Between SCAT and SAT." (Unpublished study; Clarke College, 1958.)

CHAPTER III

METHOD

Description of Subjects

The group used for this study was the 1962 Freshmen class of Loyola University, Lake Shore Campus, numbering 675 students -- 612 of whom were used for this study. (Sixty-three were lost because of incomplete test records.) Of the 612 subjects, 505 were males and 107 were females. All 612 students had to take the Henmon-Nelson. The following is a breakdown of the number of males and females who took the SCAT, the SAT, or both:

Number of males who took the SCAT 410

Number of females who took the SCAT 81

Number of males who took the SAT 192

Number of females who took the SAT 50

Number of males who took both 97

Number of females who took both 24

Description of Measures Employed

Henmon-Nelson Tests of Mental Ability:

These tests are designed to measure those aspects of mental ability which are important for success in academic work and in similar endeavors outside the classroom. The tests are published as a continuous, integrated series of measuring instruments in four levels of difficulty. The first level is designed for grades three to six; the second, for grades six to nine; the third, for grades nine to twelve, and the fourth -- the college level -- for grades thirteen to sixteen and the first year of graduate school. Two forms -- A and B -- which are similar in construction and difficulty, are available for each level of the test.

Each form of the college level test contains 100 items arranged in order of increasing difficulty. Quantitative (Q) and Verbal (V) scores may be obtained as well as a Total (T) score. The tests are very easily administered, and instructions are given only once -- at the beginning of the testing period. There is a single working time limit of forty minutes. The raw scores for the Quantitative run from three and below to thirty-seven and above; the Verbal scores from six and below to fifty-two and above; the Total scores from fifteen and below to eighty-five and above.

The population upon which the norms for the college level test are based include all college Freshmen in public and private colleges and universities throughout the United States. The norms reflect the performance of students attending college for the first time, and tested within two months of their admission in the fall of 1958. The norms are based on a random sample of 1002 papers for each form of the test. The sample of 1002 was stratified by location, size and type of institution, so that it closely resembles the college population.

College Board Scholastic Aptitude Test:

This test is a three hour objective test designed to measure how well the subjects have developed their verbal and mathematical skills. The verbal sections of the SAT measure what they read. The mathematical sections measure their ability to understand and reason with mathematical symbols and to use them in solving problems. The subjects receive one score for the verbal sections of the test and another for the mathematical sections.

The SAT is divided into five or six separately timed sections of multiple choice questions. Within each of these sections there are groups of questions, each group representing a different kind of question. Within each of these groups the questions are arranged in their approximate order of difficulty, beginning with the easiest ones.

The SAT assesses your verbal abilities through four kinds of objective test questions: antonyms; sentence completions; analogies and reading comprehension. The mathematical sections of the SAT are designed to measure the abilities closely related to college level work in the Liberal Arts and Engineering.

The Cooperative School and College Ability Tests:

These tests are intended primarily to aid in estimating the capacity of students in grades four to fourteen to undertake additional schooling. Four operational skills are measured: Part 1) Getting the meaning of isolated sentences; Part 2) Performing numerical computations rapidly; Part 3) Associating meaning of isolated words; Part 4) Solving arithmetic problems. Parts one and three are combined to obtain a verbal score; parts two and four to obtain a quantitative score; and all four parts to obtain a total aptitude score.

Collection of Data

The procedure of gathering and organizing all the necessary data was as follows:

1. Each subject's name was placed on a 4 x 6 index card.

2. The Henmon-Nelson scores (raw and percentile rank) verbal, quantitative and total were listed.

3. The College Board Scholastic Aptitude scores (standard and percentile rank) verbal, mathematical and CAR were listed.

4. The School and College Ability Test scores (standard and percentile rank) verbal, quantitative and total were listed.

5. The Grade Point Average earned by each subject during his freshman year was listed.

6. The High School Percentile Rank of each subject was listed. (It was felt by the author and his advisor that this would be more accurate than attempting to list each subject's Grade Point Average, since all high schools do not have the same grading system.)

The data for each subject were divided into two groups -- male and female. The females were numbered from one to one hundred and seven and the males from three hundred to eight hundred and four, for purposes of clarity and identification. Upon the completion of the recording of data, the cards were brought by the author to the Data Processing Department of Loyola University to be programmed by the author and the I.B.M. representative. During the period when the program was being written up, an I.B.M. card was punched-out for each subject, listing the information cited above. The Pearson Product Moment method was used for the correlation of the data. Also indicated will be the Mean and Standard Deviation for all scores used in the study. Finally, a Multiple Regression Equation was used in order to predict on a group basis the SCAT Total, the College Board CAR and the Grade Point Average.

All data were computed on an I.B.M. 8K-1401 machine, having one 1311 disc (no tapes) with fortrain capability.

Regression Equation Used in This Thesis

$$by = r \frac{sy}{sx}$$

$$\tilde{y} = \overline{y} + by \, (x - \bar{x})$$

CHAPTER IV

ANALYSIS OF THE DATA

Group I

Males and Females who took the Henmon-Nelson and SCAT.
(N -- 491)

Group II

Males and Females who took the Henmon-Nelson and College
Board. (N -- 242)

Group III

Males and Females who took the Henmon-Nelson, College Board
and SCAT. (N -- 121)

Group I

a) Pearson Product Moment Correlation Between the

    Henmon-Nelson, SCAT, Freshmen Year Grade Point

    Average and High School Percentile Rank.

The correlation with the highest significance was that between
the HNT and the SCAT-T for females (r- .774). In general, female
scores correlated more highly than males, except in the case of verbal
scores. As usual, high school rank proved to be the best single pre-
dictor of freshmen year grade point average both for males and females.

b) Pearson Product Moment Correlation Between the

    Actual SCAT-Total and the SCAT-Total as Predicted

    from the Henmon-Nelson Total.

The correlation between the actual SCAT-Total and the pre-
dicted SCAT-Total for females was higher than that for males. (r- .773
for females; r- .763 for males.) This was also true for the correlation
between the actual Grade Point Average and the predicted Grade Point
Average. (r- .475 for females; r- .499 for males.)

c) Mean and Standard Deviation for All Variables.

The females had a higher mean on all scores, grade point average
and high school rank in class, than the males.

TABLE I

Group I

Pearson Product Moment Correlation Between the Henmon-Nelson, SCAT, Freshmen Year Grade Point Average and High School Percentile Rank for Males and Females. N -- 491.

Male: (N - 410)

	HNQ	HNT	SV	SQ	ST	GPA	RIC
1. HNV	.408	.893	.765	.245	.675	.434	.250
2. HNQ		.774	.371	.648	.599	.299	.285
3. HNT			.711	.488	.651	.448	.313
4. SV				.313	.872	.441	.252
5. SQ					.729	.314	.344
6. ST						.487	.366
7. GPA							.491

All r's are significant beyond the .01 level.

Female: (N - 81)

	HNQ	HNT	SV	SQ	ST	GPA	RIC
1. HNV	.369	.873	.756	.244*	.660	.402	.297
2. HNQ		.775	.383	.720	.620	.386	.409
3. HNT			.715	.543	.774	.475	.416
4. SV				.365	.881	.383	.278
5. SQ					.747	.415	.423
6. ST						.494	.418
7. GPA							.550

All r's are significant beyond the .01 level, except those indicated by an asterisk -- and they are significant beyond the .05 level.

TABLE II

Pearson Product Moment Correlation Between SCAT Total
(Both Actual and Predicted), Freshmen Year Grade Point
Average (Both Actual and Predicted) for Males and
Females. N -- 491.

Male: (N - 410)

	SCAT Pred.	GPA Pred.	GPA Act.	GPA Pred.	GPA Pred.
1. SCAT Actual	0.763				
2. SCAT Actual		0.761			
3. SCAT Predicted			0.453		
4. SCAT Predicted				0.999	
5. GPA Actual					0.449

All r's are significant beyond the .01 level.

Female: (N - 81)

	SCAT Pred.	GPA Pred.	GPA Act.	GPA Pred.	GPA Pred.
1. SCAT Actual	0.773				
2. SCAT Actual		0.775			
3. SCAT Predicted			0.473		
4. SCAT Predicted				1.00	
5. GPA Actual					0.475

All r's are significant beyond the .01 level.

    The predicted scores and predicted GPA are ascertained from the
Henmon-Nelson Total according to the regression equation cited in the
Appendix.

TABLE III

The Mean and Standard Deviation for the Henmon-Nelson, SCAT, Freshmen Year Grade Point Average and High School Percentile Rank for Males and Females. N -- 491.

Male: (N - 410)

Var. Name	N	Mean	Std. Dev.
Henmon-Nelson Verbal	410	40.839	9.485
Henmon-Nelson Quantitative	410	23.392	6.693
Henmon-Nelson Total	410	64.249	13.699
SCAT Verbal	410	304.539	10.488
SCAT Quantitative	410	320.585	12.832
SCAT Total	410	312.073	9.596
GPA	410	2.276	0.589
Rank in Class*	401	69.020	22.142

*All high schools do not list "Rank in Class."

Female: (N - 81)

Var. Name	N	Mean	Std. Dev.
Henmon-Nelson Verbal	81	43.099	9.602
Henmon-Nelson Quantitative	81	23.494	7.409
Henmon-Nelson Total	81	66.593	14.130
SCAT Verbal	81	306.777	11.497
SCAT Quantitative	81	321.888	13.326
SCAT Total	81	314.235	10.324
GPA	81	2.442	0.556
Rank in Class*	77	83.845	14.774

*All high schools do not list "Rank in Class."

TABLE IV

Frequency Distribution of Henmon-Nelson Percentile Ranks
for Those Who Took the SCAT. N — 491.

Henmon-Nelson Verbal	Scores	Frequencies
Men (N - 410)	91-99	195
	66-90	160
	36-65	43
	10-35	9
	1- 9	2
Women (N - 81)	91-99	49
	66-90	24
	36-65	7
	10-35	1
	1- 9	0

Henmon-Nelson Quantitative		
Men (N - 410)	91-99	112
	66-90	174
	36-65	98
	10-35	23
	1- 9	3
Women (N - 81)	91-99	26
	66-90	32
	36-65	17
	10-35	4
	1- 9	2

Henmon-Nelson Total		
Men (N - 410)	91-99	198
	66-90	157
	36-65	45
	10-35	9
	1- 9	0
	0	1
Women (N - 81)	91-99	43
	66-90	28
	36-65	8
	10-35	2
	1- 9	0

The intervals for the distribution of scores was suggested by the
author's major advisor.

Group II

a) Pearson Product Moment Correlation Between the

Henmon-Nelson, College Board Freshmen Year Grade

Point Average and High School Percentile Rank.

The correlation with the highest significance was that between
the HNV and the CBV for males (r= .750). In general, female scores
correlated less highly than males, except in the case of mathematic or
quantitative scores. As might be expected, the best single predictor
of freshmen year grade point average was high school rank -- both for
males and females.

b) Pearson Product Moment Correlation Between the

Actual College Board CAR and the College Board

CAR as Predicted from the Henmon-Nelson Total.

The correlation between the actual CAR and the predicted CAR
for males was significantly higher than that for females (r= .671 for
males; r= .076 for females). This was also true for the correlation
between the actual grade point average and the predicted grade point
average (r= .496 for males; r= .246 for females). An explanation of
the low female correlations will be given at the end of this chapter.

c) Mean and Standard Deviation for all Variables.

The females had a higher mean on all scores, grade point average
and high school rank in class than the males.

TABLE V

Group II

Pearson Product Moment Correlation Between the Henmon-Nelson, College Board, Freshmen Year Grade Point Average and High School Percentile Rank for Males and Females. N -- 242.

Male: (N - 192)

	HNQ	HNT	CBV	CBM	CAR	GPA	RIC
1. HNV	.375	.892	.750	.358	.646	.422	.247
2. HNQ		.753	.386	.679	.439	.404	.332
3. HNT			.720	.585	.673	.496	.337
4. CBV				.551	.775	.395	.239
5. CBM					.546	.466	.333
6. CAR						.542	.708
7. GPA							.571

All ^{r}'s are significant beyond the .01 level.

Female: (N - 50)

	HNQ	HNT	CBV	CBM	CAR	GPA	RIC
1. HNV	.483	.863	.559	.341*	.094**	.200**	.243**
2. HNQ		.858	.362	.700	.017**	.344*	.291*
3. HNT			.536	.603	.065**	.315*	.310*
4. CBV				.217**	.621	.186**	.197**
5. CBM					.272**	.463	.455
6. CAR						.130**	.075**
7. GPA							.522

All ^{r}'s are significant beyond the .01 level, except those indicated by an Asterisk and they are significant beyond the .05 level. Those which have two Asterisks are not significant at the .05 level.

The correlations between the CBV and CAR and the CAR and RIC are invalid because CAR is found by adding the percentile rank of the CBV score and the high school percentile rank. The total is then divided by 2.

TABLE VI

Pearson Product Moment Correlation Between the Henmon-Nelson, College Board, Freshmen Year Grade Point Average and High School Percentile Rank for Females. N — 43.

Female: (N - 43)

	HNQ	HNT	CBV	CBM	CAR	GPA	RIC
1. HNV	.537	.889	.668	.387	.491	.272**	.275**
2. HNQ		.863	.480	.681	.457	.378	.346*
3. HNT			.660	.600	.542	.368*	.352*
4. CBV				.524	.764	.302*	.281**
5. CBM					.591	.480	.511
6. CAR						.478	.765
7. GPA							.551

All r's are significant beyond the .01 level, except those indicated by an Asterisk and they are significant beyond the .05 level. Those which have two Asterisks are not significant at the .05 level.

The correlations between the CBV and CAR and the CAR and RIC are invalid because CAR is found by adding the percentile rank of the CBV score and the high school percentile rank. The total is then divided by 2.

TABLE VII

Pearson Product Moment Correlation Between the College
Board CAR (Both Actual and Predicted), Freshmen Year
Grade Point Average (Both Actual and Predicted) for
Males and Females. N -- 240[a].

Male: (N - 191[a])

	CAR Pred.	GPA Pred.	GPA Act.	GPA Pred.	GPA Pred.
1. CAR Actual	0.671				
2. CAR Actual		0.672			
3. CAR Predicted			0.498		
4. CAR Predicted				0.999	
5. GPA Actual					0.496

All r's are significant beyond the .01 level.

Female: (N - 49[a])

	CAR Pred.	GPA Pred.	GPA Act.	GPA Pred.	GPA Pred.
1. CAR Actual	0.076				
2. CAR Actual		0.071-			
3. CAR Predicted			0.244-		
4. CAR Predicted				0.999-*	
5. GPA Actual					0.246

*Significant at the .01 level.

[a]All schools do not list "Rank in Class" which is necessary in determining
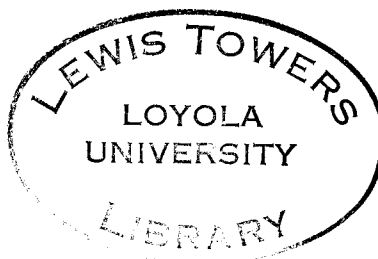the CAR.

TABLE VIII

Pearson Product Moment Correlation Between the College
Board CAR (Both Actual and Predicted), Freshmen Year
Grade Point Average (Both Actual and Predicted) for
Females.   N — 43.

Female: (N - 43)

	CAR Pred.	GPA Act.	GPA Pred.	GPA Act.	GPA Pred.	GPA Pred.
1. CAR Actual	.571					
2. CAR Actual		.493				
3. CAR Actual			.572			
4. CAR Predicted				.301*		
5. CAR Predicted					.999	
6. GPA Actual						.293*

All r's are significant beyond the .01 level, except those indicated
by an Asterisk and they are significant beyond the .05 level.

TABLE IX

The Mean and Standard Deviation for the Henmon-Nelson,
College Board, Freshmen Year Grade Point Average and
High School Percentile Rank for Males and Females.   N -- 242.

Male: (N - 192)

Var. Name	N	Mean	Std. Dev.
Henmon-Nelson Verbal	192	43.192	9.256
Henmon-Nelson Quantitative	192	25.068	6.348
Henmon-Nelson Total	192	68.260	13.041
College Board Verbal	192	518.906	92.877
College Board Math	192	554.625	93.121
CAR	191	67.417	16.873
GPA	192	2.453	0.595
Rank in Class*	191	72.953	20.894

Female: (N - 50)

Var. Name	N	Mean	Std. Dev.
Henmon-Nelson Verbal	50	46.300	7.859
Henmon-Nelson Quantitative	50	25.840	7.713
Henmon-Nelson Total	50	72.140	13.411
College Board Verbal	50	551.280	106.592
College Board Math	50	565.200	91.588
CAR	49	96.775	117.743
GPA	50	2.567	0.607
Rank in Class*	49	85.306	16.358

*All high schools do not list "Rank in Class" which is necessary to
determine the CAR.

TABLE X

The Mean and Standard Deviation for the Henmon-Nelson,
College Board, Freshmen Year Grade Point Average and
High School Percentile Rank for Females.   N -- 43.

Female: (N - 43)

Var. Name	N	Mean	Std. Dev.
Henmon-Nelson Verbal	43	45.884	8.407
Henmon-Nelson Quantitative	43	25.953	7.602
Henmon-Nelson Total	43	71.837	14.042
College Board Verbal	43	566.465	83.763
College Board Math	43	569.373	90.941
CAR	42	80.690	11.995
GPA	43	2.65745	.60857
Rank in Class*	42	86.000	16.607

*All high schools do not list "Rank in Class" which is necessary in
order to determine the CAR.

TABLE XI

Frequency Distribution of Henmon–Nelson Percentile Ranks
for Those Who Took the College Board. N -- 242.

Henmon–Nelson Verbal	Scores	Frequencies
Men (N - 192)	91-99	104
	66-90	69
	36-65	17
	10-35	1
	1- 9	1
Women (N - 50)	91-99	35
	66-90	14
	36-65	1
	10-35	0
	1- 9	0

Henmon–Nelson Quantitative		
Men (N - 192)	91-99	67
	66-90	21
	36-65	32
	10-35	7
	1- 9	0
Women (N - 50)	91-99	21
	66-90	19
	36-65	8
	10-35	1
	1- 9	1

Henmon–Nelson Total		
Men (N - 192)	91-99	116
	66-90	64
	36-65	12
	10-35	0
	1- 9	0
Women (N - 50)	91-99	32
	66-90	12
	36-65	4
	10-35	2
	1- 9	0

Group III

a) Pearson Product Moment Correlation Between the Henmon-

Nelson, SCAT, College Board, Freshmen Year Grade Point

Average and High School Percentile Rank.

The correlation with the highest significance was that between the HNV and SCAT-V for males (r - .769). In general, female scores correlated more highly than males, except in a few cases. The best single predictor of freshmen year grade point average was high school rank, both for males and females.

b) Pearson Product Moment Correlation Between the Actual

College Board CAR and the College Board CAR as Pre-

dicted from the Henmon-Nelson Total.

The correlation between the actual CAR was higher for males than for females (r - .657 for males; r - .604 for females); whereas the correlation between the actual SCAT-Total and the predicted SCAT-Total was higher for females than for males (r - .748 for females; r - .747 for males). The correlation between the actual Grade Point Average and the predicted Grade Point Average was higher for males than for females (r - .474 for males; r - .051 for females*). *An explanation of the low female correlations will be given at the end of this chapter.

c) Mean and Standard Deviation for all Variables.

The females had a higher mean on all scores, grade point average and high school rank in class than the males.

TABLE XII

Group III

Pearson Product Moment Correlation Between the Henmon-Nelson, SCAT, College Board, Freshmen Year Grade Point Average and High School Percentile Rank for Males. N -- 97.

Male: (N - 97)

	HNQ	HNT	CBV	CBM	CAR	SV	SQ	ST	GPA	RIC
HNV	.279	.879	.720	.294	.660	.769	.160*	.666	.438	.346
HNQ		.703	.261	.575	.355	.255	.616	.500	.297	.337
HNT			.663	.503	.665	.695	.424	.741	.472	.423
CBV				.497	.781	.843	.302	.788	.365	.298
CBM					.426	.444	.608	.626	.382	.243*
CAR						.681	.447	.744	.422	.701
SV							.249*	.878	.482	.301
SQ								.670	.395	.419
ST									.563	.442
GPA										.476

All r's are significant beyond the .01 level, except those with an Asterisk and they are significant beyond the .05 level.

The correlations between the CBV and CAR and the CAR and RIC are invalid because CAR is found by adding the percentile rank of the CBV score and the high school percentile rank. The total is then divided by 2.

TABLE XIII

Pearson Product Moment Correlation Between the Henmon-Nelson, SCAT, College Board, Freshmen Year Grade Point Average and High School Percentile Rank for Females. N -- 24.

Female: (N - 24)

	HNQ	HNT	CBV	CBM	CAR	SV	SQ	ST	GPA	RIC
HNV	.403*	.847	.663	.374**	.498	.667	.245**	.576	.422*	.398*
HNQ		.827	.259**	.739	.527	.433*	.717	.687	.441*	.521
HNT			.557	.658	.611	.660	.566	.751	.514	.546
CBV				.412*	.735	.772	.300**	.677	.558	.441*
CBM					.612	.409*	.805	.744	.491*	.572
CAR						.732	.563	.822	.571	.833***
SV							.325**	.799	.378**	.471
SQ								.802	.476*	.567
ST									.576	.666
GPA										.623

All r's are significant beyond the .01 level except those which have an Asterisk and they are significant at the .05 level. Those which have two Asterisks are not significant at the .05 level. Three Asterisks: CAR is computed by averaging the College Board Verbal Percentile Rank and the High School Percentile Rank.

The correlations between the CBV and CAR and the CAR and RIC are invalid because CAR is found by adding the percentile rank of the CBV score and the high school percentile rank. The total is then divided by 2.

TABLE XIV

Pearson Product Moment Correlation Between the Hermon-Nelson, SCAT, College Board, Freshmen Year Grade Point Average and High School Percentile Rank for Females. N -- 22.

Female: (N - 22)

	HNQ	HNT	CBV	CBM	CAR	SV	SQ	ST	GPA	RIC
HNV	.466	.883	.692	.435*	.513	.684	.255**	.610	.495*	.394*
HNQ		.825	.258**	.674	.468*	.375**	.682	.634	.490*	.547
HNT			.578	.633	.574	.634	.523	.724	.575	.540
CBV				.413*	.783	.804	.302**	.717	.544	.456*
CBM					.592	.364**	.794	.719	.500	.608
CAR						.710	.519	.803	.671	.843
SV							.268**	.784	.437*	.459*
SQ								.777	.525	.565
ST									.657	.674
GPA										.697

All r's are significant beyond the .01 level except those indicated by an Asterisk and they are significant beyond the .05 level. Those which have two Asterisks are not significant at the .05 level.

The correlations between the CBV and CAR and the CAR and RIC are invalid because CAR is found by adding the percentile rank of the CBV score and the high school percentile rank. The total is then divided by 2.

TABLE XV

Pearson Product Moment Correlation Between College Board CAR (Both Actual and Predicted), SCAT Total (Both Actual and Predicted) and Freshmen Year Grade Point Average (Both Actual and Predicted) for Males. (N — 97).

	CAR Pred.	SCAT Pred.	GPA Pred.	SCAT Actual	SCAT Pred.	GPA Actual	GPA Pred.	SCAT Pred.	GPA Actual	GPA Pred.	GPA Actual	GPA Pred.	GPA Pred.
CAR Actual	.667												
CAR Actual		.667											
CAR Actual			.665										
CAR Predicted				.745									
CAR Predicted					.999								
CAR Predicted						.475							
CAR Predicted							.999						
SCAT Actual								.747					
SCAT Actual									.563				
SCAT Actual										.742			
SCAT Predicted											.474		
SCAT Predicted												.999	
GPA Actual													.474

All r's are significant beyond the .01 level.

TABLE XVI

Pearson Product Moment Correlation Between College Board
CAR (Both Actual and Predicted), SCAT Total (Both Actual
and Predicted) and Freshmen Year Grade Point Average
(Both Actual and Predicted) for Females. (N — 24)

	CAR Pred.	SCAT Pred.	GPA Pred.	SCAT Actual	SCAT Pred.	GPA Actual	GPA Pred.	SCAT Pred.	GPA Actual	GPA Pred.	GPA Actual	GPA Pred.	GPA Pred.
CAR Actual	.604												
CAR Actual		.617											
CAR Actual			.613										
CAR Predicted				.745									
CAR Predicted					.999								
CAR Predicted						.508							
CAR Predicted							.999						
SCAT Actual								.748					
SCAT Actual									.576				
SCAT Actual										.752			
SCAT Predicted											.505		
SCAT Predicted												.999	
GPA Actual													.0516*

All r's are significant beyond the .01 level, except those indicated by an Asterisk and they
are not significant beyond the .05 level.

TABLE XVII

Pearson Product Moment Correlation Between College Board
CAR (Both Actual and Predicted), SCAT Total (Both Actual
and Predicted) and Freshmen Year Grade Point Average
(Both Actual and Predicted) for Females. (N -- 22)

	CAR Pred.	SCAT Actual	SCAT Pred.	GPA Actual	GPA Pred.	SCAT Actual	SCAT Pred.	GPA Actual	GPA Pred.	SCAT Pred.	GPA Actual	GPA Pred.	GPA Actual	GPA Pred.	GPA Pred.
CAR Actual	.580														
CAR Actual		.803													
CAR Actual			.562												
CAR Actual				.671											
CAR Actual					.575										
CAR Pred.						.734									
CAR Pred.							.999								
CAR Pred.								.576							
CAR Pred.									.999						
SCAT Actual										.711					
SCAT Actual											.657				
SCAT Actual												.723			
SCAT Pred.													.577		
SCAT Pred.														.999	
GPA Actual															.573

All r's are significant beyond the .01 level.

TABLE XVIII

The Mean and Standard Deviation for the Henmon-Nelson,
College Board, SCAT, Freshmen Year Grade Point Average
and High School Percentile Rank for Males and Females.
N -- 121.

Male: (N - 97)

Var. Name	N	Mean	Std. Dev.
Henmon-Nelson Verbal	97	42.958	8.874
Henmon-Nelson Quantitative	97	24.825	5.941
Henmon-Nelson Total	97	67.784	11.983
College Board Verbal	97	508.588	90.525
College Board Math	97	551.536	88.034
CAR	97	67.670	16.777
SCAT Verbal	97	306.556	10.345
SCAT Quantitative	97	324.020	11.979
SCAT Total	97	314.618	9.289
GPA	97	2.430	0.532
Rank in Class	97	73.500	20.355

Female: (N - 24)

Var. Name	N	Mean	Std. Dev.
Henmon-Nelson Verbal	24	45.541	8.423
Henmon-Nelson Quantitative	24	26.125	7.949
Henmon-Nelson Total	24	71.667	13.722
College Board Verbal	24	546.334	80.877
College Board Math	24	544.791	96.653
CAR	24	78.458	14.017
SCAT Verbal	24	309.625	8.242
SCAT Quantitative	24	325.375	15.817
SCAT Total	24	317.416	9.131
GPA	24	2.652	0.6098
Rank in Class	24	84.041	19.604

TABLE XIX

The Mean and Standard Deviation for the Henmon-Nelson,
College Board, SCAT, Freshmen Year Grade Point Average
and High School Percentile Rank for Females. N -- 22.

Female: (N - 22)

Var. Name	N	Mean	Std. Dev.
Henmon-Nelson Verbal	22	45.273	8.764
Henmon-Nelson Quantitative	22	26.318	7.259
Henmon-Nelson Total	22	71.591	13.739
College Board Verbal	22	550.000	83.525
College Board Math	22	549.818	89.476
CAR	22	78.091	13.910
SCAT Verbal	22	309.500	8.339
SCAT Quantitative	22	325.409	15.700
SCAT Total	22	317.364	8.936
GPA	22	2.71682	0.59643
Rank in Class	22	83.637	20.335

Summary of Analysis of Data

The females had a higher mean on all scores, grade point average and high school percentile rank in class than the males. The higher level may be due to the following: a) In order for a female to attend Lake Shore Campus, she must major in mathematics, the natural sciences or nursing; whereas, a male has the alternative of majoring in the sciences or liberal arts -- and since it is generally accepted that the sciences attract a higher caliber of student for the most part, it is not surprising that females were better achievers. b) Males may have spent more time on the pursuit of extra-curricular aspects of college life than females and less time on academic pursuits. c) Females may have been more intrinsically interested in the pure academics of their courses; whereas, males may have looked upon their course-work as a means of avoiding the draft, or, perhaps, as an unpleasant, but necessary means of attaining an occupational end.

The correlations established indicate a high degree of relationship between the Henmon-Nelson Total and the SCAT Total, both for males and females; the latter group established the higher correlation of the two. Thus, the females who took the Henmon-Nelson and the SCAT are a little more predictable than the males. However, the correlations for the females who took the Henmon-Nelson and College Board were noticeably lower than those of the males, except in the correlation between the Henmon-Nelson Quantitative and the College Board Mathematics. In this

instance, the females established a higher correlation than the males. The author has found that the male verbal scores always correlate higher than those of the females -- and that the female quantitative or mathematics scores always correlate higher than those of the males. The explanation of this phenomenon may be due to the fact that all the females are majoring in the sciences where mathematics play a very large roll; whereas, all the males are not majoring in the sciences.

The best predictor of freshmen year grade point average for both men and women was high school rank. The finding of the high school rank as the best predictor of freshmen year grade point average is not surprising -- traditionally, it has been the best single index of academic success in the first year of college. The best predictor of freshmen year grade point average for Group #1 was the SCAT-Total (r - .487 for males; r - .494 for females). The Henmon-Nelson Total was much lower in its correlation with freshmen year grade point average (r - .313 for males; r - .416 for females).

The best predictor of freshmen year grade point average for Group #2 was the College Board CAR (r - .542 for males; r - .465 for females). The Henmon-Nelson Total was much lower in its correlation with freshmen year grade point average (r - .496 for males; r - .344 for females).

The best predictor of freshmen year grade point average for Group #3 was the SCAT-Total (r - .563 for males; r - .576 for females). The Henmon-Nelson Total was much lower in its correlation with the freshmen

year grade point average (r - .472 for males; r - .441 for females).

The correlation between the actual and predicted SCAT-Total and the actual and predicted grade point average was higher for females than for males; whereas, the correlation for the actual and predicted CAR scores and the actual and predicted grade point average was higher for males than for females. Thus, it would appear that the SCAT is a more valid test for females and the College Board a more valid test for males.

Particularly noteworthy are the low correlations for the females in Groups II and III. However, these low correlations may be best explained by the very small number of females in each group (N -- 50; N -- 24), and also a particularly unusual group of seven girls within these two groups. A check was made on the correlation between the Hemmon-Nelson Verbal and the Grade Point Average for these seven girls. The correlation was found to be .408-. Thus, the reason for the low correlation for Groups II and III as a whole. Upon securing this information, the author immediately pulled the data for these seven females and re-correlated the data for the remaining forty-three females.

The forty-three females who took the Henmon-Nelson and the College Board were considered a sub-group of Group II. Of this group of forty-three, there were twenty-two females who also took the College Board; they were considered a sub-group of Group III. The difference in the correlations for Groups II and III, without the somewhat erratic group of seven females, can be seen by examining the charts on pages 32, 33, 34, 40, 41, 43 and 44.

The mean of the grade point average for this group of seven females was 2.017. For purposes of comparison, a chart was set up for the subgroup of Group II (N -- 43 females) between the HNV and GPA. After examing this chart, the reader can easily see the marked difference of the GPA for this group of seven females.

Of the seven females, two completely withdrew from school after their freshman year, but were never on probation. One transferred to the University College, although she also was not on probation. Four changed from science majors to liberal arts; of these four, only two were on probation at the end of their freshman year.

TABLE XX

Henmon-Nelson Verbal Scores and Grade Point Averages for
Fifty Female Subjects in Groups II and III.

HNV	1.40-1.80	1.81-2.20	2.21-2.60	2.61-3.00	3.01-3.40	3.41-3.80	Mean of GPA
56-60			III	I	I	II	2.90
51-55	I	II	I	II	II	III	2.84
46-50		IIII					2.16 for N-10
	I	III	I			I	2.01 for N-7
41-45		II	III	IIII		I	2.57
36-40		I	II	I	II		2.68
31-35	II		I	I			2.37
26-30		I		I			2.37
GPA	1.40-1.80	1.81-2.20	2.21-2.60	2.61-3.00	3.01-3.40	3.41-3.80	

CHAPTER V

SUMMARY

The purpose of this study was to determine the correlational and predictive validity of the Henmon-Nelson Intelligence Test with the School and College Ability Test; the College Board Scholastic Aptitude Test; High School Percentile Rank; and the Freshmen Year Grade Point Average for the 1962 Freshmen Class of Loyola University, Lake Shore Campus.

The group used for this study numbered 612 students. Of the 612, 505 were males and 107 were females. All 612 students had to take the Henmon-Nelson. The following is a breakdown of the number of males and females who took the SCAT, the SAT, or both:

Number of males who took the SCAT 410
Number of females who took the SCAT 81

Number of males who took the SAT 192
Number of females who took the SAT 50

Number of males who took both 97
Number of females who took both 24

This study proposed to determine the correlation between the Henmon-Nelson, College Board and SCAT. It also proposed to determine the correlation between the Henmon-Nelson, College Board, SCAT and High School Percentile Rank with Freshmen Year Grade Point Average. In addition, this study proposed to determine the best predictor of academic success of the variables used. Further, the author wished to ascertain

the predictive validity of the Henmon-Nelson for the College Board, SCAT and Grade Point Average. Finally, the author wished to investigate the possibility of using the Henmon-Nelson for late registrants in place of the College Board or SCAT.

(All data were correlated on an I.B.M. 1401 machine.)

The findings indicated a high positive relationship between the Henmon-Nelson and the SCAT for both males and females; a slightly less high positive correlation for males between the Henmon-Nelson and College Board; and, finally, an even lower correlation for the females between the Henmon-Nelson and College Board before the seven female subjects, already referred to, were taken out. Then the correlations for the females between the Henmon-Nelson and College Board were significantly higher.

The findings also indicated that High School Percentile Rank is the best single index of academic success (freshmen year GPA in this case). Also, of the tests used in this study, the findings indicated that the SCAT Total score is the best predictor of freshmen year GPA.

The findings further indicated that the correlation between the actual and predicted SCAT of College Board scores were always higher than those between the actual and predicted GPA.

Finally, the findings indicated that the Henmon-Nelson might well be used for testing late registrants, but that the probability of its success would be greatly enhanced if it were only given to those enrolling at Lake Shore Campus.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

Conclusions:

Females at Lake Shore Campus for the 1962 Freshmen class had a higher mean score for the Henmon-Nelson Intelligence Test, the SCAT and Grade Point Average; whereas, the males were superior in the College Board score. However, this is only what one would expect, i.e., females attending Lake Shore Campus must major in the Natural Sciences or Mathematics, but males can major in the Liberal Arts or a Science curriculum. Thus, the intellectual caliber of males would not be as high as that of the females since, in order to enter a science curriculum, a student's entrance examination score and high school percentile are of necessity higher than a student who wishes to enter a liberal arts curriculum.

Because of the higher correlation between the Henmon-Nelson score and Grade Point Average, the females attained a higher degree of predictability.

Since there is a high positive correlation between the Henmon-Nelson and the SCAT and a slightly lower positive correlation between the Henmon-Nelson and the College Board, it can be said that the correlations are high enough so that College Board and SCAT scores could be safely and accurately approximated on the basis of Henmon-Nelson scores.

Of the tests used in this study, the SCAT-Total is the best index

of academic success was High School Percentile Rank.

The correlations between the actual scores and those predicted from the Henmon-Nelson Total ranged in general from moderately positive to highly positive for the subjects in Groups I, II and III. The females in Group II (N -- 50) had especially low correlations. However, when the somewhat erratic group of seven females in Groups II and III were taken out and the data for remaining subjects in Groups II and III were re-correlated, the correlations were significantly higher. Apparently the correlations between the Henmon-Nelson and the SCAT are higher because both the Henmon-Nelson and SCAT were given at the post high school level; whereas, the College Board is administered almost exclusively to high school seniors.

There is little doubt that this latest revision of the college level Henmon-Nelson Intelligence Test is a much better measure of scholastic ability in general than its earlier versions. Objections formerly made to this test through the years have to a large extent been overcome. Although it is true that some criticisms can still be made, it is also true that this test approximates the ideal for tests of its kind. It is easily administered and scored, relatively short, acceptably reliable and reasonably valid.

Recommendations for Further Research:

A follow-up should be made on this particular freshmen class and others to be used in future studies, e.g., how many were placed on probation; how many dropped out of school; how many graduated. Of those

who dropped out of school for academic reasons, were their scores higher
or lower than those who graduated?

A longitudinal study of freshmen taking the Henmon-Nelson at
Loyola University should be made in order to more accurately ascertain
the worth of the Henmon-Nelson.

An attempt should be made to determine what motivational factors
were decisive in a student doing "poorly" or "well" in these tests and
in his Freshmen Year Grade Point Average. This would especially be true
for the group of seven females to which the author previously referred.

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APPENDIX

Copies of the Henmon-Nelson and SCAT. Educational Testing Service will not release the College Board SAT.

THE

Henmon–Nelson

TESTS OF MENTAL ABILITY

M. J. Nelson, Ph.D.

Tom A. Lamke, Ph.D. • Paul C. Kelso, Ed.D.

IOWA STATE TEACHERS COLLEGE
CEDAR FALLS, IOWA

FORM
A

COLLEGE LEVEL
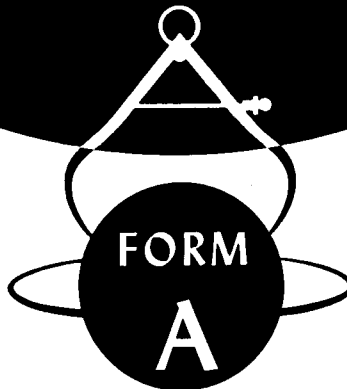
REUSABLE BOOKLET

REVISED EDITION

80. **4, 6, 7, 3, 2, 8, 9.   Square the fourth number and subtract the third unless the fourth is odd and the fifth even; in that event square the fourth and subtract the second; in either case add 1 unless the first number is a multiple of 3 in which case add 2. Indicate the answer which is numbered the same as the result.**

81. **16, 4, 1, 6, 24, 6, 3, 8, 32, ... , ... What two numbers should come next?**
    (1) 8 and 13   (2) 8 and 4   (3) 8 and 5   (4) 29 and 34   (5) 8 and 2

82. **1440, 240, ... , 12, 4. What number should appear in the blank?**
    (1) 16   (2) 24   (3) 20   (4) 48   (5) 72

83. **If 3 is 6% of a number, what is the number?**
    (1) 30   (2) 90   (3) 50   (4) 15   (5) 31

84. **A neophyte is a:**
    (1) worm   (2) rock formation   (3) planet   (4) beginner   (5) soldier

85. **Furtive means about the same as:**
    (1) distant   (2) stealthy   (3) wicked   (4) removed   (5) advanced

86. **1, 5, 2, 3, 15, 12, 13, ... The next number would be:**
    (1) 14   (2) 10   (3) 60   (4) 65   (5) 45

87. **Intimidate is to frighten as entreat is to:**
    (1) beseech   (2) mollify   (3) introduce   (4) give   (5) seek

88. **Pulchritude means:**
    (1) well-dressed   (2) new   (3) overly large   (4) physical beauty   (5) out of season

89. **To covenant is to:**
    (1) imitate   (2) contract   (3) discover   (4) negotiate   (5) fulfill

90. **A sodality is a:**
    (1) fellowship   (2) sex offense   (3) hard substance   (4) fight   (5) drink

91. **$^{20}\!/_4$ is to 4 as 45 is to:**
    (1) $^4\!/_{20}$ (2) 180   (3) 360   (4) 36   (5) 72

92. **What is the average rate per hour of a vehicle that travels 403.2 miles in 3 hours and 12 minutes?**
    (1) 132.3   (2) 134.4   (3) 47.1   (4) 126   (5) 101.2

93. **3, 19, 2, 6, 9, 31, 17.   If the square root of the second number is greater than the cube root of the fifth, square the third and subtract the first; if not, square the first and subtract the third unless the first is odd, in which case square the fourth and subtract the sixth. Indicate the answer which is numbered the same as the resulting difference.**

94. **360, 72, ... , 6, 3. What number should appear in the blank?**
    (1) 18   (2) 9   (3) 36   (4) 12   (5) 15

95. **A recrudescent disease is:**
    (1) fatal   (2) non-recurring   (3) active again   (4) not curable   (5) caused by filth

96. **33, 28, ... , 21, 19, ... What two numbers should appear in the blanks?**
    (1) 23 and 17   (2) 26 and 14   (3) 24 and 18   (4) 25 and 16   (5) 23 and 15

97. **A rapacious person is:**
    (1) hasty   (2) boisterous   (3) delighted   (4) greedy   (5) pleasing

98. **An obsequious person is:**
    (1) popular   (2) servile   (3) wealthy   (4) open-minded   (5) witty

99. **6, 3, 4, 16, 8, 5, 6, 24, 12, ... , ... What two numbers should come next?**
    (1) 9 and 10   (2) 15 and 16   (3) 9 and 36   (4) 13 and 52   (5) 6 and 7

100. **Sexagesimal pertains to:**
    (1) sex   (2) the number 60   (3) the number 16   (4) elderly people   (5) yachting

DIRECTIONS TO STUDENTS

Do not turn this page until directed to do so.

No marks of any kind are to be made on this test booklet. Answers are to be marked on a separate answer sheet, where there is also room for any rough figuring you may need to do.

Failure to observe the following rules may lower your score:

- If you were given a special pencil to use in recording your responses on the answer sheet, that pencil **must** be used.
- If you are using the **IBM answer sheet** which requires you to mark your answers by filling in spaces between dotted lines, be sure to make each mark heavy and black. Mark only **one** answer for each question. If you change your answer, you must **erase** the first mark **completely.** Then mark your corrected choice.
- If you are using the **self-marking answer sheet,** you will indicate your answers by marking an **X** in a small box numbered the same as the answer of your choice. Mark only **one** answer for each question. Use some pressure in making your **X** so it will be sure to register. If you wish to change an answer on these answer sheets, do **not** erase your first answer but simply **draw a circle around it.** Then mark your corrected choice.
- Attempt to answer each question. Do not spend too much time on any one question; if a given question puzzles you, go on to the next one, which may be easier. You may guess at the right answer if you think you know it, but if you have no idea what the right answer is, avoid wild guessing and omit the question.
- As you work on the test, **keep your place on the answer sheet.** Make certain that the answer you are marking is numbered the same as the item you are answering.

The three practice exercises below are given so that you may see how to do the test.

Practice 1.

Oak is a kind of:
(1) wood   (2) stone   (3) metal   (4) glass   (5) liquid

Which word tells what **oak** is? Yes, **wood** is the answer. This answer has been correctly marked for you on the answer sheet.

Practice 2.

1, 2, 3, 4, 5, ..., ... What two numbers should come next?
(1) 1 and 2   (2) 9 and 1   (3) 10 and 7   (4) 22 and 20   (5) 6 and 7

On your answer sheet, mark the answer you think is correct. You should have marked response number 5 for practice question 2, since the answer (5) is correct.

Practice 3.

Scales are to fish as wool is to:
(1) cotton   (2) sheep   (3) birds   (4) silk   (5) lakes

What is the number of the best answer? Mark the response space numbered the same as the answer you think is correct. You should have marked number 2 for practice question 3, since **scales** are to **fish** as **wool** is to **sheep.**

You will have 40 minutes to work on this test. Do not begin work until you are told to do so.

60. **Facility means:**
     (1) firmness   (2) surface   (3) duplicity   (4) expression   (5) ease

61. **Ambiguous is about the opposite of:**
     (1) definite   (2) small   (3) genuine   (4) enigmatic   (5) perpetual

62. **3, 14, 5, 12, 8, 2. If Christmas and New Year invariably fall on the same day of the week, square the first number and subtract half the second; if not, square the third number and subtract twice the fourth. Indicate the answer numbered the same as the difference.**

63. **The difference between two numbers is $\frac{1}{4}$. Their sum is 1. What are the two numbers?**
     (1) $\frac{6}{8}$ and $\frac{2}{8}$ (2) $\frac{1}{4}$ and $\frac{3}{4}$ (3) $\frac{1}{2}$ and $\frac{1}{4}$ (4) $\frac{2}{8}$ and $\frac{3}{8}$ (5) $\frac{3}{8}$ and $\frac{5}{8}$

64. **Superlative means:**
     (1) superior   (2) unlimited   (3) the lowest   (4) sensitive   (5) unlike

65. **3, 9, 12, 36, 39, 117, ... , ... What two numbers should come next?**
     (1) 120 and 360   (2) 120 and 234   (3) 234 and 236   (4) 351 and 354   (5) 121 and 363

66. **A debonair person is:**
     (1) wealthy   (2) old   (3) hungry   (4) courteous   (5) disillusioned

67. **A lucid question is:**
     (1) debatable   (2) clear   (3) lengthy   (4) difficult   (5) important

68. **By how much must 12 be increased to stand in the same ratio to 21 as 30 does to 35?**
     (1) 6   (2) 9   (3) 3   (4) 14   (5) 5

69. **John had $120. He spent part of his money and now has only $15. What per cent of his money did he spend?**
     (1) $92\frac{1}{2}$ (2) $89\frac{3}{10}$ (3) $91\frac{2}{5}$ (4) 85   (5) $87\frac{1}{2}$

70. **Viniculture is to vines as aviculture is to:**
     (1) trees   (2) bees   (3) birds   (4) farming   (5) fish

71. **To embellish is to:**
     (1) deface   (2) beautify   (3) destroy   (4) blind   (5) publish

72. **A discerning person is:**
     (1) intrepid   (2) immune   (3) discriminating   (4) radical   (5) fearful

73. **To disdain is to:**
     (1) pity   (2) check   (3) despise   (4) discard   (5) challenge

74. **Hypocrisy is a form of:**
     (1) gambling   (2) worship   (3) sham   (4) government   (5) surgery

75. **If the square root of forty-nine less the square root of two is a number less than the square of three, indicate the first answer; if it is more, indicate the fifth answer.**

76. **A decibel measures:**
     (1) electric current   (2) temperature   (3) walking distance   (4) volume of sound
     (5) readability

77. **Heinous is to odious as commendable is to:**
     (1) secret   (2) affable   (3) perplexing   (4) laudable   (5) act

78. **A precocious child is:**
     (1) sickly   (2) fretful   (3) angelic   (4) advanced   (5) awkward

79. **3, 6, 8, 24, 27, 108, ... What number should appear in the blank?**
     (1) 432   (2) 112   (3) 324   (4) 132   (5) 216

1. **A person of integrity is:**
   (1) upright   (2) neutral   (3) prejudiced   (4) ungainly   (5) profound

2. **To delude is to:**
   (1) mislead   (2) carry away   (3) bring   (4) seek   (5) demand

3. **If a silver kopek is worth 40¢, how many kopeks can one buy for $216?**
   (1) 540   (2) 360   (3) 864   (4) 5400   (5) 3600

4. **6 ,12, ..., 27, 36, 46. What number should appear in the blank?**
   (1) 18   (2) 19   (3) 24   (4) 15   (5) 14

5. **Acute means:**
   (1) permeable   (2) mighty   (3) morose   (4) inadequate   (5) keen

6. **To diverge is to:**
   (1) come together   (2) amuse   (3) branch off   (4) plant   (5) agree

7. **19, 16, 14, 11, 9, 6, ..., ... What two numbers should come next?**
   (1) 3 and 0   (2) 3 and 1   (3) 4 and 1   (4) 8 and 11   (5) 5 and 2

8. **Conservative is the opposite of:**
   (1) vigilant   (2) liberal   (3) reserved   (4) inherent   (5) discriminative

9. **A stripling is a:**
   (1) voter   (2) highlander   (3) tribesman   (4) youth   (5) vassal

10. **An ingenious person is:**
    (1) vehement   (2) stately   (3) noble   (4) sinless   (5) inventive

11. **A synopsis is a:**
    (1) nerve part   (2) disease   (3) refutation   (4) condensation   (5) preface

12. **Vigilant is the opposite of:**
    (1) negligent   (2) tactful   (3) pungent   (4) typical   (5) rampant

13. **1, 2, 4, 8, 16, 32, ..., ... What two numbers should come next?**
    (1) 36 and 40   (2) 58 and 59   (3) 33 and 34   (4) 48 and 64   (5) 64 and 128

14. **Revoke is to cancel as elude is to:**
    (1) refer   (2) embark   (3) await   (4) evade   (5) exalt

15. **An azure sky is:**
    (1) clouded   (2) threatening   (3) reddish   (4) starry   (5) blue

16. **Arabian is to horse as Bengal is to:**
    (1) tiger   (2) sheep   (3) Arabia   (4) vegetable   (5) Africa

17. **The sum of two numbers is 5; their product is 0. What are the two numbers?**
    (1) 2½ and 2½   (2) 2 and 3   (3) 0 and 5   (4) 5 and 10   (5) ½ and 5½

18. **If the square of six less the square of four is an odd number divisible by 5, indicate the third answer; if not, indicate the fifth answer.**

19. **If the sum of the squares of the successive odd numbers from 1 to 5 inclusive is less than seven times six, indicate the second answer; if more, indicate the third answer.**

20. **Meticulous is to slovenly as turbulent is to:**
    (1) noisy   (2) awesome   (3) desirable   (4) peaceful   (5) vacillating

21. **To blight is to:**
    (1) shine   (2) disappear   (3) ruin   (4) compress   (5) ignore

22. **House residence President United White of called States the of the the the is**   If these words were arranged to make a good sentence, what would be the first letter of the second word in the sentence?
    (1) H   (2) p   (3) o   (4) r   (5) t

23. **93, 82, ..., 63, 55, 48. What number should appear in the blank?**
    (1) 71   (2) 70   (3) 74   (4) 75   (5) 72

24. **An eccentric person is:**
    (1) dishonest   (2) thrifty   (3) skeptical   (4) peculiar   (5) foolish

25. **Oblivion is a state of:**
    (1) worry   (2) fear   (3) poverty   (4) forgetfulness   (5) thanksgiving

26. **Reimburse is to embezzle as regurgitate is to:**
    (1) steal   (2) swallow   (3) specify   (4) count   (5) revivify

27. **Premeditation involves:**
    (1) sleeping   (2) curing   (3) planning   (4) looking back   (5) hesitation

28. **To metamorphose is to:**
    (1) leap   (2) see   (3) occupy   (4) liken   (5) change

29. **If eight is less than nine but more than six, indicate the fifth answer; if less than nine and less than six, indicate the fourth answer.**

30. **9, 18, 15, 30, 27, ..., ... What two numbers should come next?**
    (1) 24 and 21   (2) 64 and 61   (3) 54 and 108   (4) 54 and 51   (5) 36 and 33

31. **9, 10, 5, 6, 3, 4, ..., ... What two numbers should come next?**
    (1) 3 and 4   (2) 1 and 2   (3) 2 and 3   (4) 8 and 9   (5) 5 and 2

32. **Ponderous means:**
    (1) concise   (2) impotent   (3) unconscious   (4) weighty   (5) mischievous

33. **3, 18, 6, 36, 12, ..., ... What two numbers should come next?**
    (1) 72 and 9   (2) 72 and 26   (3) 72 and 36   (4) 72 and 24   (5) 72 and 432

34. **13, 19, ..., 34, 43, ... What two numbers should appear in the blanks?**
    (1) 25 and 52   (2) 28 and 49   (3) 24 and 33   (4) 26 and 53   (5) 25 and 53

35. **A bulwark is a:**
    (1) marker   (2) fortification   (3) monument   (4) scaffold   (5) guidepost

36. **1, 4, 9, 16, 25, 36, ..., ... What two numbers should come next?**
    (1) 48 and 61   (2) 49 and 64   (3) 39 and 54   (4) 41 and 46   (5) 49 and 65

37. **A supercilious person is:**
    (1) monstrous   (2) illicit   (3) humble   (4) miserly   (5) arrogant

38. **Sodden means:**
    (1) upturned   (2) grassy   (3) worthless   (4) leaden   (5) soaked

39. **To be apathetic is to be:**
    (1) enthused   (2) informed   (3) ignorant   (4) indifferent   (5) sincere

40. **What per cent of $400 is 4% of $500?**
    (1) $16\frac{2}{3}\%$ (2) 5% (3) 10% (4) $2\frac{1}{2}\%$ (5) 3%

41. **If three plus five is greater than seven and less than nine, indicate the fifth answer unless six is greater than five, in which case indicate the first answer.**

42. **Base is to noble as lewd is to:**
    (1) noisy (2) think (3) coarse (4) chaste (5) sensitive

43. **1529, 1478, 1427, 1376, 1325, ... What number should come next?**
    (1) 1274 (2) 1275 (3) 1254 (4) 1225 (5) 1224

44. **$\frac{5}{6}$ are how many thirds?**
    (1) 3 (2) $3\frac{3}{5}$ (3) $2\frac{1}{2}$ (4) $2\frac{1}{5}$ (5) $1\frac{1}{6}$

45. **Diamond is to jewel as gold is to:**
    (1) ring (2) silver (3) element (4) mine (5) plentiful

46. **Resuscitate is to revivify as copy is to:**
    (1) imitate (2) originate (3) model (4) prepare (5) serve

47. **A bauble is a:**
    (1) mistake (2) model (3) cup (4) trinket (5) shawl

48. **A seismograph records:**
    (1) music (2) blood pressure (3) writing (4) speed (5) quakes

49. **11, 7, 10, 12, 24, 20, 23, 25, ... The next number should be:**
    (1) 21 (2) 50 (3) 28 (4) 27 (5) 5

50. **One who is deft is:**
    (1) careful (2) dumb (3) skillful (4) hard of hearing (5) destructive

51. **Dissonance is a term most often used in:**
    (1) art (2) music (3) law (4) medicine (5) sociology

52. **A trite saying is:**
    (1) commonplace (2) brilliant (3) short (4) unusual (5) witty

53. **To recapitulate is to:**
    (1) take (2) offend (3) solve (4) surrender (5) summarize

54. **Excruciating means about the same as:**
    (1) returning (2) leaving (3) assembling (4) exhibiting (5) torturing

55. **20, 18, 24, 8, 6, 12, 4, ... , ... What two numbers should come next?**
    (1) 2 and 8 (2) 6 and 12 (3) 2 and 4 (4) 8 and 16 (5) 2 and 6

56. **Anger is to violence as love is to:**
    (1) caress (2) hate (3) temper (4) hope (5) happiness

57. **88, 76, 74, 62, 60, 48, ... What number should appear in the blank?**
    (1) 36 (2) 50 (3) 52 (4) 98 (5) 46

58. **Defray is to expense as discharge is to:**
    (1) cancel (2) obligation (3) salary (4) weapons (5) surface

59. **7, 4, 8, 5, 10, 7, ... , ... What two numbers should come next?**
    (1) 4 and 8 (2) 11 and 8 (3) 13 and 10 (4) 12 and 8 (5) 14 and 11

**FORM
A**

HOUGHTON MIFFLIN COMPANY
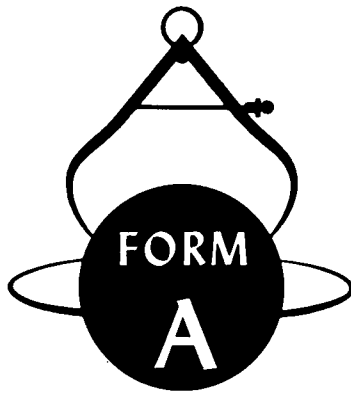
	Raw Score	% ile Rank
QUANTITATIVE		
VERBAL		
TOTAL		

NAME _____ AGE _____ SEX _____
Last   First   Middle   Yrs   Mos

SCHOOL OR COLLEGE _____ CITY _____

CLASS _____ DATE OF TEST _____ FORM _____

THE
Henmon-Nelson
TESTS OF MENTAL ABILITY

M. J. Nelson, Ph.D.

Tom A. Lamke, Ph.D. • Paul C. Kelso, Ed.D.

IOWA STATE TEACHERS COLLEGE
CEDAR FALLS, IOWA

Self-Marking Answer Sheet • COLLEGE LEVEL

FORM
A

Q		V		T	
RS	%ile	RS	%ile	RS	%ile
3	1	6	1	15	1
4	2	7	2	16	2
5	3	8	2	17	3
6	4	9	3	18	4
7	6	10	5	19	4
8	9	11	6	20	5
9	12	12	8	21	6
0	17	13	11	22	7
1	22	14	13	23	9
2	27	15	16	24	10
3	32	16	19	25	11
4	38	17	22	26	13
5	44	18	26	27	15
6	49	19	29	28	17
7	54	20	32	29	18
8	59	21	36	30	20
9	65	22	39	31	22
0	68	23	43	32	24
1	72	24	46	33	26
2	76	25	50	34	30
3	80	26	53	35	33
4	83	27	56	36	35
5	86	28	60	37	37
6	88	29	63	38	39
7	90	30	67	39	42
8	92	31	69	40	44
9	93	32	72	41	47
0	94	33	74	42	49
1	95	34	77	43	52
2	96	35	79	44	55
3	97	36	81	45	57
4	97	37	83	46	59
5	98	38	85	47	61
6	98	39	87	48	64
7+	99	40	88	49	66
		41	89	50	68
		42	90	51	70
		43	91	52	72
		44	92	53	74
		45	93	54	76
		46	94	55	77
		47	95	56	78
		48	96	57	80
		49	97	58	81
		50	98	59	82
		51	98	60	84
		52+	99	61	85
				62	86
				63	87
				64	88
				65	90
				66	91
				67	92
				68	92
				69	93
				70	94
				71	95
				72	95
				73	96
				74	96
				75	97
				76	97
				77	97
				78	98
				79	98
				80	98
				81	98
				82	98
				83	98
				84	98
				85+	99

Column 1: 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

Column 2: 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79

Column 3: 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59

Column 4: 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39

Column 5: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

Q SCORE

V SCORE

Q + V

TOTAL RAW SCORE

DIRECTIONS FOR SCORING

1. V Score

Starting at the upper *left* ha[nd] corner, count the marks that f[all] within the blue boxes in all fi[ve] columns. Do not count any that a[re] encircled. Record the number of co[r]rect answers in the box marked [V] Score at the end of the five column[s].

2. Q Score

Starting at the upper *right* ha[nd] corner, count the marks that f[all] within the red boxes in all fi[ve] columns. Do not count any that a[re] encircled. Record the number of co[r]rect answers in the box marked [Q] Score at the end of the five column[s].

3. Total Score

Add the Q Score and the V Sco[re.] The result is the Total Raw Score. R[e]cord this total in the center box.

4. Percentiles

Transfer the scores to the colu[mn] for Raw Scores on the front page [of] the answer sheet. Percentile ran[ks] for beginning-of-year college fres[h]men may be obtained from the co[n]version table on the opposite pag[e.] These norms are taken from Tabl[es] 1 and 2 in the Examiner's Manual.

HENMON-NELSON
COLLEGE LEVEL

FORM
A
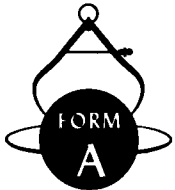
PRACTICE EXERCISES

1 ⊠ 2 3 4 5

2 1 2 3 4 5

3 1 2 3 4 5

...ncircle any answer you wish to ...ange; then place your mark in ...other box.

PAGE 1	PAGE 2	PAGE 3	PAGE 4	PAGE 5
1 1 2 3 4 5	21 1 2 3 4 5	40 1 2 3 4 5	60 1 2 3 4 5	80 1 2 3 4 5
2 1 2 3 4 5	22 1 2 3 4 5	41 1 2 3 4 5	61 1 2 3 4 5	81 1 2 3 4 5
3 1 2 3 4 5	23 1 2 3 4 5	42 1 2 3 4 5	62 1 2 3 4 5	82 1 2 3 4 5
4 1 2 3 4 5	24 1 2 3 4 5	43 1 2 3 4 5	63 1 2 3 4 5	83 1 2 3 4 5
5 1 2 3 4 5	25 1 2 3 4 5	44 1 2 3 4 5	64 1 2 3 4 5	84 1 2 3 4 5
6 1 2 3 4 5	26 1 2 3 4 5	45 1 2 3 4 5	65 1 2 3 4 5	85 1 2 3 4 5
7 1 2 3 4 5	27 1 2 3 4 5	46 1 2 3 4 5	66 1 2 3 4 5	86 1 2 3 4 5
8 1 2 3 4 5	28 1 2 3 4 5	47 1 2 3 4 5	67 1 2 3 4 5	87 1 2 3 4 5
9 1 2 3 4 5	29 1 2 3 4 5	48 1 2 3 4 5	68 1 2 3 4 5	88 1 2 3 4 5
10 1 2 3 4 5	30 1 2 3 4 5	49 1 2 3 4 5	69 1 2 3 4 5	89 1 2 3 4 5
11 1 2 3 4 5	31 1 2 3 4 5	50 1 2 3 4 5	70 1 2 3 4 5	90 1 2 3 4 5
12 1 2 3 4 5	32 1 2 3 4 5	51 1 2 3 4 5	71 1 2 3 4 5	91 1 2 3 4 5
13 1 2 3 4 5	33 1 2 3 4 5	52 1 2 3 4 5	72 1 2 3 4 5	92 1 2 3 4 5
14 1 2 3 4 5	34 1 2 3 4 5	53 1 2 3 4 5	73 1 2 3 4 5	93 1 2 3 4 5
15 1 2 3 4 5	35 1 2 3 4 5	54 1 2 3 4 5	74 1 2 3 4 5	94 1 2 3 4 5
16 1 2 3 4 5	36 1 2 3 4 5	55 1 2 3 4 5	75 1 2 3 4 5	95 1 2 3 4 5
17 1 2 3 4 5	37 1 2 3 4 5	56 1 2 3 4 5	76 1 2 3 4 5	96 1 2 3 4 5
18 1 2 3 4 5	38 1 2 3 4 5	57 1 2 3 4 5	77 1 2 3 4 5	97 1 2 3 4 5
19 1 2 3 4 5	39 1 2 3 4 5	58 1 2 3 4 5	78 1 2 3 4 5	98 1 2 3 4 5
20 1 2 3 4 5		59 1 2 3 4 5	79 1 2 3 4 5	99 1 2 3 4 5
				100 1 2 3 4 5

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YOLA UNIVERSITY

PSYCHOLOGICAL SERVICES

525 SHERIDAN ROAD

HICAGO 26, ILLINOIS

**College Ability
Test**

IV

Form 1 B

Catalog No. 151-02-1C

General Directions

This is a test of some of the skills you have been learning ever since you first entered school. You should take it in the same way that you would work on any other new and interesting assignment.

The test is divided into four parts, which you will take one at a time. Give each one your close attention and do your best on every question. You probably will find some of the questions quite easy and others more difficult. You are *not* expected to answer every question correctly.

There are a few general rules for taking this test that will help you to earn your best score:

- Work carefully, but do not spend too much time on any one question. It usually is better to answer first all of the questions in the part that you know well and can answer quickly. Then go back to the questions that you want to think about.

- If you work at average speed you will have plenty of time to read and answer all of the questions. By leaving until last the questions that are most difficult, you will make best use of your time.

- You may answer questions even when you are not perfectly sure that your answers are correct. Your score will be the number of correct answers you mark.

- Put *all* of your answers on the answer sheet. This test booklet should not be marked in any way. Your examiner will give you an extra sheet of scratch paper to use when you do the number problems.

- Fill in all the information called for on the answer sheet and PRINT your name so that it can be read.

- Make sure that you understand instructions *before* you start work on any part. Ask the examiner to repeat the instructions if you do not understand exactly what you are to do.

- Make your answer marks on the answer sheet heavy and black. If you change your mind about an answer, be sure to erase your first mark completely.

If you give this test your best effort, your score will provide a good estimate of your ability in these important skills.

HE
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other

DIRECTIONS FOR PART I

Each question in Part I consists of a sentence in which one word is missing; a blank indicates where the word has been removed from the sentence. Beneath each sentence are five words, one of which is the missing word. You are to select the missing word by deciding which one of the five words *best* fits in with the meaning of the sentence.

<u>Sample Question</u>

We had worked hard all day so that by evening we were quite

A small   **B** tired   **C** old
D untrained   **E** intelligent

If you understand the sample sentence you will realize that "tired" is the missing word because none of the other words fits in with the meaning of the sentence. Next, on the answer sheet, you find the line numbered the same as the question and blacken the space which has the same letter as the missing word. Because "tired" is the correct word to use in the sample sentence, and its letter is **B** , the space marked **B** on the answer sheet is blackened. See how it has been marked on the answer sheet. Do *not* make any marks in your test booklet.

1 The heavy red earth is so rich in this area that ( ) is practically unknown.

A fertilizer   B sickness   C cultivation
D irrigation   E toiling

2 Considering how late the helicopter has been in arriving, it is ( ) to learn how early its basic idea was discovered.

F easy   G superfluous   H surprising
J hard   K desirable

3 There are things that the government may do ( ) that no individual would be allowed to do.

A surreptitiously   B proudly   C occasionally
D legally   E precisely

4 The ( ) for hoarding may be excessive precaution against possible future needs or it may be the mere satisfaction gained from possession.

F need   G justification   H expenditure
J disdain   K motive

5 Since the cattle business required comparatively few persons for its successful operation, the cow country was populated ( ).

A densely   B inadequately   C sparsely
D tardily   E early

6 The scientists of the past had investigated nature, but almost always by observation and not by ( ), for they had never made elaborate apparatus.

F theory   G experiment   H memory
J logic   K records

7 Encouraged by his own success, he ( ) to tell the same kind of story.

A started   B needed   C hesitated
D loved   E continued

8 The advent of cheap ( ) helped make it possible to conduct an industry on a large scale by making available a wide market.

F transportation   G products   H machines
J land   K power

9 He seemed ( ) to everything around him; nothing could rouse him to an awareness of his environment.

A oblivious   B receptive   C adjusted
D attuned   E disposed

10 Because he insisted upon publishing only that which was true, he was relieved of his position and replaced by a more ( ) man.

F literary   G progressive   H fluent
J intelligent   K subservient

11 Freedom is not permission to flout the truth but to ( ) your life by knowledge of it.

A regulate   B ransom   C prolong
D justify   E re-examine

12 Because subtlety of expression is an ( ) quality, it may not be appreciated by those who prefer music that wears its heart on its sleeve.

F individual   G elusive   H insidious
J elementary   K extraneous

13 Because of the ( ) views of the factions composing the party, the convention adjourned without adopting a platform.

A liberal   B outspoken   C irrelevant
D divergent   E untenable

14 The best education is one that equips the learner for a life which will bring satisfaction to himself and ( ) to society.

F compliance   G interest   H pleasure
J honor   K profit

15 In arguing that any interruption was a cardinal offense, Oliver Wendell Holmes exhibited an extremely autocratic view of conversation, which would be ( ) to a highly democratic people like the French.

A monotonous   B intolerable   C fascinating
D unfavorable   E disheartening

16 He had ( ) the entire story and only later did we learn that Betty was in fact an excellent swimmer.

F recited   G elucidated   H read
J concocted   K heeded

17 The Knights of Labor held that the mechanization of industry was steadily ( ) craft distinctions and thus putting all wage earners on the same level.

A dominating   B belittling   C increasing
D consolidating   E erasing

18 The acceptance by the Republicans of so much of the Federalist program left the Federal party nothing ( ) to stand for.

F honest   G acceptable   H distinctive
J popular   K constructive

19 The hibernation of the woodchuck, involving as it does a retarding of the life processes, is less ( ) than the migratory flight of the hummingbird or the flash of shooting stars, but it is not much less remarkable.

A rapid   B spectacular   C puzzling
D constant   E frequent

20 A man often refrains from doing evil so that he will be able to contemplate himself without ( ).

F fear   G disgust   H pity
J envy   K hope

21 As soon as it was recognized that sedimentary rocks were deposits, it followed that their relative position indicated their relative ( ).

A origin   B age   C size
D content   E structure

22 The ( ) of dramatic composition in *Lohengrin* is well illustrated by the fact that the celebrated passages from this opera that appear in anthologies all need some kind of makeshift ending supplied by the editor, without which the piece would merge with the next "number."

F continuity   G appeal   H melodiousness
J logic   K climax

23 From the purely ( ) point of view the scene presented by the storm was one of undiluted splendor and magnificence.

A practical   B scientific   C aesthetic
D meteorological   E objective

24 This is a type of satire in which the emotion comes first and then seeks a ( ) on which to vent itself.

F medium   G victim   H stage
J crisis   K level

25 For me, wanting to be happy is a ( ) ambition, for I find it very difficult to be unhappy.

A superfluous   B permanent   C primary
D dangerous   E futile

26 The savage, experiencing the regularly recurring events of nature's cycles, mistakes the desired recurrence for an ( ) of his own will and the dreaded recurrence for that of the will of his enemies.

F illusion   G illustration   H accident
J implement   K effect

27 Nothing hides the differences in ( ) between one person and another so much as differences in income.

A behavior   B power   C beliefs
D merit   E conscience

28 Some members of the privileged classes feared that universal suffrage would lead to government by ( ) since power would rest on the ignorance of the voters.

F default   G proxy   H demagogues
J fiat   K bureaucracy

29 The attitude of men toward money is often so bizarre and totally different from their other characteristics that to ( ) from it is impossible.

A profit   B detract   C retreat
D generalize   E recover

30 In the case of the ancient Polynesian navigators we have some basis for ( ), for we can study their descendants today and so find hints of the methods that led the ancient colonizers across the Pacific.

F alarm   G conjecture   H exploration
J imitation   K proficiency

STOP *Stop.* **If you finish before time is called, check your work on this part. Do *not* go on to Part II until you are told to do so.**

DIRECTIONS FOR PART II

There are 25 problems in Part II of the test. Following each problem there are five suggested answers. Work each problem in your head or on a piece of scratch paper. Then look at the five suggested answers and decide which one is correct. Blacken the space under its letter on the answer sheet.

Because the correct answer to the sample problem is 586, which is lettered **F**, the space marked **F** on the answer sheet is blackened. See how it has been marked on the answer sheet. Do *not* make any marks in your test booklet.

Sample Problem

5413
−4827

F 586   G 596   H 696
J 1586   K None of these

Do not turn this page until you are told to do so.

1
$$68081$$
$$-18984$$

- **A** 49,097
- **B** 49,197
- **C** 50,107
- **D** 59,097
- **E** None of these

2 Which of the following is "four hundredths"?

- **F** $\frac{1}{400}$
- **G** .04
- **H** .4
- **J** 400
- **K** None of these

3 $1\frac{1}{5} \times 275$

- **A** 300
- **B** 320
- **C** 325
- **D** 350
- **E** None of these

4 1 yard 1 foot 6 inches
$$\times 2$$

- **F** 2 yards 2 feet
- **G** 2 yards 2 feet 1 inch
- **H** 2 yards 2 feet 6 inches
- **J** 3 yards
- **K** 3 yards 2 feet

5
$$7$$
$$-1\frac{2}{3}$$

- **A** $5\frac{1}{3}$
- **B** $5\frac{2}{3}$
- **C** $6\frac{1}{3}$
- **D** $6\frac{2}{3}$
- **E** None of these

6 $8.1\overline{)81.081}$

- **F** .1001
- **G** 1.001
- **H** 1.01
- **J** 10.01
- **K** 10.1

7
$$7 \text{ hours } 12 \text{ minutes}$$
$$-2 \text{ hours } 55 \text{ minutes}$$

- **A** 4 hours 17 minutes
- **B** 4 hours 57 minutes
- **C** 4 hours 67 minutes
- **D** 5 hours 17 minutes
- **E** None of these

8 $2\frac{1}{4} \times 3\frac{1}{3}$

- **F** $6\frac{1}{12}$
- **G** $6\frac{1}{2}$
- **H** $7\frac{5}{12}$
- **J** $7\frac{1}{2}$
- **K** $7\frac{7}{12}$

9
$$.091$$
$$\times .091$$

- **A** .008281
- **B** .08281
- **C** .182
- **D** .8281
- **E** None of these

10
$$709\frac{1}{2}$$
$$9486\frac{1}{3}$$
$$+ \quad 32\frac{1}{4}$$

- **F** $10,217\frac{3}{4}$
- **H** $10,227\frac{1}{12}$
- **G** $10,227\frac{11}{12}$
- **J** $10,228\frac{1}{12}$
- **K** None of these

11 What is 25% of 16%?

- **A** .4%
- **B** 4%
- **C** 40%
- **D** 156.25%
- **E** 400%

12 $1\frac{3}{8} \div 1\frac{2}{3}$

- **F** $\frac{33}{40}$
- **G** $1\frac{7}{33}$
- **H** $1\frac{31}{55}$
- **J** $2\frac{7}{24}$
- **K** None of these

13 $\frac{2}{3} \times \frac{3}{5} \times \frac{5}{2}$

- **A** 0
- **B** $\frac{1}{2}$
- **C** 2
- **D** 3
- **E** None of these

14 $.9 - .006$

- **F** .3
- **G** .814
- **H** .894
- **J** .896
- **K** .906

15 $3\frac{3}{20} \div \frac{9}{10}$

- **A** $\frac{2}{7}$
- **B** $\frac{200}{567}$
- **C** $1\frac{5}{6}$
- **D** $2\frac{167}{200}$
- **E** $3\frac{1}{2}$

16 $.625 \times 924$

- **F** 515
- **G** 576.5
- **H** 577.4
- **J** 577.5
- **K** None of these

17 $101 - 1.01$

- **A** 99.09
- **B** 99.99
- **C** 100.99
- **D** 109.99
- **E** None of these

18 $33\frac{1}{3} \div 3\frac{1}{3}$

- **F** 10
- **G** $10\frac{1}{3}$
- **H** 11
- **J** $111\frac{1}{9}$
- **K** None of these

19
$$2 \text{ hours } 10 \text{ minutes } 20 \text{ seconds}$$
$$- \quad 10 \text{ minutes } 30 \text{ seconds}$$

- **A** 1 hour 50 seconds
- **B** 1 hour 59 minutes 50 seconds
- **C** 2 hours 10 seconds
- **D** 2 hours 59 minutes 50 seconds
- **E** None of these

20 Change $\frac{3}{16}$ to a per cent.

F $1\frac{7}{8}\%$

G $5\frac{1}{3}\%$

H $12\frac{1}{2}\%$

J $18\frac{3}{4}\%$

K None of these

22

$$1\frac{3}{8}$$
$$2\frac{1}{3}$$
$$+4\frac{1}{6}$$

F $7\frac{1}{8}$

G $8\frac{1}{24}$

H $8\frac{1}{12}$

J $8\frac{1}{8}$

K None of these

24 Change $\frac{73}{37500}$ to a per cent.

F .02%

G .05%

H .2%

J .5%

K None of these

21 $\frac{.7}{.05}$ is equal to which of the following?

A $\frac{7}{50}$

B $\frac{7}{5}$

C 14

D 35

E None of these

23 The average of $\frac{5}{6}$ and $\frac{5}{8}$ is

A $\frac{5}{7}$

B $\frac{17}{24}$

C $\frac{25}{48}$

D $\frac{35}{48}$

E None of these

25 How many inches (to the nearest inch) is 22% of 3 feet?

A 1

B 6

C 7

D 8

E 9

Stop. If you finish before time is called, check your work on this part. Do *not* go back to the previous part. Do *not* go on to Part III until you are told to do so.

DIRECTIONS FOR PART III

Each of the questions in Part III consists of one word in large letters followed by five words or phrases in small letters. Read the word in large letters. Then pick, from the words or phrases following it, the one whose meaning is closest to the word in large letters. For example:

Sample Question

chilly

A tired **B** nice **C** dry
D cold **E** sunny

In order to find the correct answer you look at the word **chilly** and then look for a word or phrase below it that has the same or almost the same meaning. When you do this you see that "cold" is the answer because "cold" is closest in meaning to the word "chilly." Next, on the answer sheet you find the line numbered the same as the question and blacken the space which has the same letter as the word you have selected as the correct one. Because "cold" is the correct answer to the sample question, the space marked **D** on the answer sheet is blackened. See how it has been marked on the answer sheet. Do *not* make any mark in your test booklet.

Do not turn this page until you are told to do so.

1 meddle
- **A** hurt
- **B** sharpen
- **C** interfere
- **D** shake
- **E** pat

2 quadrangle
- **F** form of dance
- **G** musical instrument
- **H** four-footed animal
- **J** four-sided figure
- **K** sharp corner

3 flog
- **A** stun
- **B** beat
- **C** bother
- **D** soak
- **E** tread

4 anticipate
- **F** supplant
- **G** foresee
- **H** take part in
- **J** oppose
- **K** endorse

5 propulsion
- **A** driving forward
- **B** attraction
- **C** rhythmic motion
- **D** movement upward
- **E** strong inward feeling

6 diminish
- **F** flatten
- **G** default
- **H** undermine
- **J** finish
- **K** lessen

7 bias
- **A** prejudice
- **B** horizontal line
- **C** basis
- **D** ridicule
- **E** restraint

8 finesse
- **F** trickery
- **G** delicate skill
- **H** cleanliness
- **J** originality
- **K** good quality

9 despond
- **A** speak in whispers
- **B** lay bare
- **C** daydream
- **D** lose hope
- **E** answer negatively

10 maim
- **F** scold
- **G** cripple
- **H** discipline
- **J** torture
- **K** shackle

11 boycott
- **A** ration
- **B** make a bargain
- **C** strike
- **D** corner a market
- **E** withhold business

12 acquiesce
- **F** agree to
- **G** argue
- **H** stipulate
- **J** exaggerate
- **K** compromise

13 affront
- **A** plan
- **B** alarm
- **C** insult
- **D** startle
- **E** sham

14 dauntless
- **F** sunny
- **G** courageous
- **H** rude
- **J** splendid
- **K** defenseless

15 tepid
- **A** tasteless
- **B** hesitant
- **C** lukewarm
- **D** glistening
- **E** sour

16 deteriorate
- **F** grow worse
- **G** disappear
- **H** alter
- **J** discredit
- **K** contradict

17 requisition
- **A** service for the dead
- **B** recompense
- **C** memorandum
- **D** interrogation
- **E** order

18 adage
- **F** mental weakness
- **G** later years
- **H** proverb
- **J** normal condition
- **K** custom

19 affix
- **A** deface
- **B** repair
- **C** adjust
- **D** attach
- **E** conspire

20 regime
- **F** diet
- **G** happy period
- **H** government
- **J** rule of a queen
- **K** legal code

21 bravado
- **A** sham courage
- **B** gesture
- **C** self-conceit
- **D** profuse liberality
- **E** creativeness

22 dilate

   F talk about
   G enlarge
   H calibrate
   J thin out
   K postpone

25 qualm

   A duty
   B feeling of shame
   C state of rest
   D misgiving
   E shudder

28 heterogenous

   F varied
   G irregular
   H highly intelligent
   J incomprehensible
   K of dubious origin

23 minutiae

   A tiny insects
   B data
   C weariness
   D details
   E very short time unit

26 fallow

   F inadequate
   G ill-advised
   H pale
   J unformed
   K uncultivated

29 lexicon

   A linking
   B poetic meter
   C dictionary
   D system of grammar
   E lecturer's desk

24 imminent

   F mixed in with
   G direct
   H impending
   J well known
   K emerging

27 panacea

   A cure-all
   B plume
   C pacifier
   D patent medicine
   E intestines

30 cupidity

   F astuteness
   G fastidiousness
   H love
   J avarice
   K terror

STOP **Stop.** If you finish before time is called, check your work on this part. Do *not* go back to either previous part. Do *not* go on to Part IV until you are told to do so.

DIRECTIONS FOR PART IV

There are 25 problems in Part IV of the test. Following each problem there are five suggested answers. Work each problem in your head or on a piece of scratch paper. Then look at the five suggested answers and decide which one is correct. Blacken the space under its letter on the answer sheet.

Because the correct answer to the sample problem is 8, which is lettered **H**, the space marked **H** on the answer sheet is blackened. See how it has been marked on the answer sheet.

Do *not* make any marks in your test booklet.

Sample Problem

Four $10-bills are equal to how many $5-bills?

   F 20   **G** 10   **H** 8
   J 40   **K** 2.

1 How many inches are there in $2\frac{1}{2}$ feet?

A 24
B 26
C 28
D 30
E 32

2 On 5 successive days the attendance at a certain school was 416, 420, 400, 434, and 390, respectively. What was the average daily attendance during this period?

F 400
G 412
H 416
J 1030
K 2060

3 How many miles per hour must you average in order to travel 810 miles in 18 hours?

A 36
B 45
C 54
D 145.8
E 180

4 Four $20 bills are equal to how many $5 bills?

F 16
G 20
H 25
J 40
K 400

5 For the first 4 days of the week a boy paid 55 cents each day for lunch. If his lunch allowance was $3.00 for 5 days, how many cents did he have left to spend for lunch the fifth day?

A 60
B 65
C 70
D 75
E 80

6 What is the interest for one year on $60 if the interest rate is $2\frac{1}{2}\%$ per year?

F $1.50
G $4.20
H $12.50
J $15.00
K $24.00

7 If 4 pencils cost 10 cents, how many pencils can be bought for 40 cents?

A 10
B 16
C 40
D 100
E 160

8 John works at the store 2 hours each day on school days and 8 hours on Saturday. If he makes $14.40 per week, how much does he earn per hour?

F $.72
G $.80
H $.90
J $1.44
K $1.60

9 How many minutes are there from ten minutes of three to a quarter past six?

A 155
B 175
C 185
D 200
E 205

10 Ordinary brass is made up of two parts copper to one part zinc. How many pounds of copper are there in 30 pounds of brass?

F 10
G 12
H 15
J 18
K 20

11 How much larger than 39 is 3900?

A 100
B 390
C 1000
D 3861
E 3961

12 If the price of canned milk is reduced from 3 cans for 40 cents to 2 cans for 25 cents, how many cents does one save on a dozen cans?

F 5
G 10
H 15
J 20
K 30

13 How many $2\frac{1}{2}$-foot paces will it take to cover the same distance that 120 3-foot paces cover?

A   96
B   100
C   125
D   140
E   144

14 A jacket marked $27 was sold for $22.95 during a sale. What was the per cent reduction?

F   15
G   16
H   17
J   18
K   20

15 John has saved $24, which is $33\frac{1}{3}\%$ of the cost of a certain bicycle. How much *more* must he save to buy the bicycle?

A $8
B $32
C $48
D $72
E $80

Fred and Allen's Garden

12 feet

15 feet
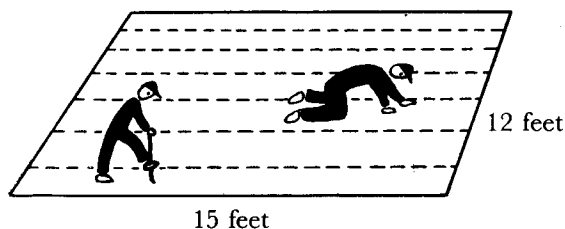
Problems 16 through 18 are to be answered on the basis of the figures given in the illustration above.

---

16 If Allen plowed $\frac{3}{4}$ of the rectangular garden, how many square *yards* did he plow?

F $11\frac{1}{4}$
G   15
H   30
J   45
K   90

17 Fred and Allen planted six 15-foot rows of seeds. If they planted seeds on the average of 1 every 8 inches, about how many seeds did they plant?

A   60
B   135
C   270
D   720
E   1125

18 Fencing cost 10 cents per square foot. If they put a fence 2 feet high all around the garden, how much did the fence cost them?

F $1.80
G $1.08
H $2.70
J $5.40
K $10.80

$2 \text{ pints} = 1 \text{ quart} \;/\; 4 \text{ quarts} = 1 \text{ gallon}$

---

19 What part of a gallon is $2\frac{1}{2}$ pints?

A $\frac{1}{10}$
B $\frac{5}{16}$
C $\frac{5}{12}$
D $\frac{5}{8}$
E $\frac{4}{5}$

20 The square root of 8125 is about

F   28
G   90
H   95
J   280
K   905

21 Mr. Glass plans to rent a truck to move his furniture. For the use of the truck he must pay 10 cents per mile plus $1.50 per hour, with a minimum charge of $15.00. If he expects to drive the truck a total of 45 miles, how many hours can he keep it without paying more than the minimum charge?

A $5\frac{1}{2}$
B   6
C $6\frac{1}{2}$
D   7
E $7\frac{1}{2}$

22 X, Y, and Z did a job together. X did $\frac{3}{20}$ of the work, which was $\frac{1}{3}$ as much as Y did. What fraction of the work did Z do?

F $\frac{1}{20}$
G $\frac{2}{5}$
H $\frac{11}{20}$
J $\frac{3}{5}$
K $\frac{4}{5}$

23 One acre is equal to approximately .405 hectare. One hectare is equal to approximately how many acres?

A   .164
B   .247
C   .595
D   1.64
E   2.47

Go on to the next page.

24 A man earns $390 per *month* and spends $27 per *week* on food. What per cent of a *year's* earnings does he spend on food?

F 20
G 25
H 30
J 35
K 40

25 If a factory's output were increased by 3000 units per year, its annual output would be tripled. What is the factory's present annual output?

A 750
B 1000
C 1500
D 2000
E 4500

If you finish before time is called, check your work on this part. Do *not* go back to any previous part.

MONTHS **GRADE OR CLASS**

EARS

CITY

DATE MONTH DAY YEAR

1.

3.

MONTH DAY YEAR

SCAT • **School and College Ability Tests** • **SCAT**

Cooperative Test Division, Educational Testing Service

Berkeley 4, California

Princeton, New Jersey

PART I

	F	G	H	J	K
2					
	A	B	C	D	E
3					
	F	G	H	J	K
4					
	A	B	C	D	E
5					
	F	G	H	J	K
6					
	A	B	C	D	E
7					
	F	G	H	J	K
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	A	B	C	D	E
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	F	G	H	J	K
10					
	A	B	C	D	E
11					
	F	G	H	J	K
12					
	A	B	C	D	E
13					
	F	G	H	J	K
14					
	A	B	C	D	E
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	F	G	H	J	K
16					
	A	B	C	D	E
17					
	F	G	H	J	K
18					
	A	B	C	D	E
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	A	B	C	D	E
27					
	F	G	H	J	K
28					
	A	B	C	D	E
29					
	F	G	H	J	K

PART II

	F	G	H	J	K
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	A	B	C	D	E
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	F	G	H	J	K
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PART III

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27					
	F	G	H	J	K
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	A	B	C	D	E
29					
	F	G	H	J	K

PART IV

	F	G	H	J	
2					
	A	B	C	D	
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	F	G	H	J	
4					
	A	B	C	D	
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	F	G	H	J	
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	F	G	H	J	
22					
	A	B	C	D	
23					
	F	G	H	J	
24					
	A	B	C	D	
25					

APPROVAL SHEET

The thesis submitted by J. Dennis Lamping has been read and approved by three members of the Department of Education.

The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated, and that the thesis is now given final approval with reference to content, form, and mechanical accuracy.

The thesis is therefore accepted in partial fulfillment of the requirements for the Degree of Master of Arts.

Jan 5, 1966
_____
Date

John A. Wellington
_____
Signature of Adviser