

OAT Optometry
Admission Test

A SERVICE OF
ASCO ASSOCIATION of
SCHOOLS and COLLEGES
of OPTOMETRY

Optometry Admission Test (OAT) User's Guide

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Part One: Introduction and Background

History of the Optometry Admission Test Program

In 1987, the format of the Optometry College Admission Test (OCAT) was changed to include four tests: the Survey of the Natural Sciences (biology, general chemistry, and organic chemistry); Reading Comprehension; Physics; and Quantitative Reasoning. At that time the name of the test was changed to the Optometry Admission Test (OAT™).

The Optometry Admission Test (OAT) is administered under the auspices of the Association of Schools and Colleges of Optometry (ASCO) for applicants seeking admission to schools and colleges of optometry. This testing program is designed to measure general academic ability and comprehension of scientific information. While the majority of optometry schools in the United States and Canada require applicants to participate in the OAT Program, test results are only one factor considered in evaluating an applicant's potential.

Validity studies conducted by the testing program have shown that test scores in conjunction with collegiate records are useful in predicting optometry school performance. The relative importance of these predictors in the admission process is determined by each optometry school.

Content of the Optometry Admission Test

The OAT is a battery consisting of four individual tests: the Survey of the Natural Sciences, Reading Comprehension Test, Physics Test, and Quantitative Reasoning Test.

The Survey of the Natural Sciences is an achievement test covering content from first-year courses in Biology, General Chemistry, and Organic Chemistry. The 90-minute test contains a total of 100 items, including 40 Biology items, 30 General Chemistry items, and 30 Organic Chemistry items. The three subtests are subdivided into several topic areas.

The Reading Comprehension Test consists of 50 items and three reading passages of approximately 1,100 to 1,500 words each. The subject matter of these passages is drawn from aspects of the basic sciences. Each passage is followed by approximately 15 to 20 items that examine the concepts and ideas developed in the passage. The time limit for the test is 60 minutes.

The Physics Test is an achievement test covering content from a two-semester physics course. It is a 50-minute test containing 40 items.

The Quantitative Reasoning Test measures an examinee's ability to reason with numbers and work intelligently with quantitative materials. This 45-minute test contains 40 items.

Additional content specifications for these four tests are presented in Part Three of this *User Guide*. Practice test material can be found at <https://oat.ada.org/>.

Test Construction

Test construction for the OAT is a complex, multi-step process. Undergraduate faculty specializing in each of these disciplines develop new items for the Survey of the Natural Sciences, Physics, and Quantitative Reasoning Tests. Test Construction Teams (TCTs) specific to each discipline review new items for accuracy and relevance. Items that pass this initial review process are then pre-tested (i.e., administered to examinees, but not used in official scoring). After pretesting, the appropriate TCT may review item content and candidate performance, and, if necessary, revise the content to meet psychometric standards established for the test. Subject matter experts with backgrounds in science and English language arts develop the topics for new Reading Comprehension Test passages and work to develop the passages and accompanying items. New reading passages undergo the same review and pretesting process as other test items.

TCTs and trained psychometricians select the items to be included on each edition of the test, based on content specifications and various standards of item quality. Item quality is determined by an item's performance when administered to examinees. Two statistics in particular are of chief interest: the difficulty of the item and its discrimination index.

Item difficulty is calculated based on the percentage of individuals who answered the item correctly. The difficulty level of the item is thus inversely related to the percentage of examinees who answer the item correctly. As the percentage of examinees who answer the item correctly increases, the difficulty of the item decreases. The recommended item-difficulty level for OAT items ranges from 40 percent to 89 percent.

The discrimination index is a point-biserial correlation coefficient, where the coefficient associated with an item represents the correlation between performance on that item and the total score on that particular test. A low correlation coefficient, such as 0.01, would indicate the average test score of individuals who answered the item correctly was roughly the same as the average score of individuals who answered the item incorrectly. In this case, item performance would be unrelated to overall test performance, thus indicating that the item does not discriminate and should therefore be discarded. A higher correlation coefficient, such as .45, would indicate the item is highly effective at discriminating between high scoring and low scoring examinees. Items with higher discrimination index values are more useful in determining a rank order of examinees according to the ability being measured. OAT items that do not discriminate at acceptable levels are either revised or discarded.

Interpreting OAT Scores

Each test in the OAT battery yields a raw score, which is the sum of an examinee's correct answers. The raw score is converted to a scale score which can range from 200 to 400. Using scale scores it is possible to compare the performance of examinees who attempted different editions of the examination.

In addition to the scale scores provided for each test, scale scores are also reported to represent overall performance across the science tests, and overall performance in academic areas appearing on the OAT. The Total Science score is based on the raw scores for the 100 items from the Survey of the Natural Sciences — including Biology, General Chemistry, and Organic Chemistry — and the 40 Physics items. The Academic Average is a composite score computed from the mean of the Quantitative Reasoning, Reading Comprehension, Biology, General Chemistry, Organic Chemistry, and Physics standard scores. If an examinee does not

take a section of the test, they would receive a raw score of zero and a standard score of 200 on that section.

Ideally, the mean score for each test on the OAT would always be exactly 300, assuming a comparably skilled set of examinees is completing the test. However, in any testing program, some variation in scores is inevitable; therefore the amount of drift from the ideal mean of 300 is constantly monitored. The OAT Program provides frequency tables for each OAT subtest regularly. This information provides guidance in interpreting the scores and insight into any drift from the expected mean score of 300. For example, in the frequency tables for 2024, the mean scores were 305 for Biology, 304 for General Chemistry, 297 for Organic Chemistry, 328 for Reading Comprehension, 316 for Quantitative Reasoning, and 280 for Physics.

Beginning May 1, 2009, recalibrated OAT scale scores were reported to candidates and programs. This occurred as part of the ongoing validation process for the OAT. ASCO had requested that the OAT scale be recalibrated so the mean scale score would return to 300 with a standard deviation of 40. The data for this recalibration study was based on a reference group of examinees taking the OAT for the first time in 2008. The rescaling for each subtest on the OAT was accomplished through the use of the Rasch model, which takes both examinee ability and item difficulty into account.

The new scale had the following major implications for OAT scores:

- Scores obtained under the new and old scales were not directly comparable. A score of 300 on the old scale, for example, did not have the same conceptual meaning as a score of 300 on the new scale.
- When reviewing examinees' scores, the date the test was taken and differences in the scale required consideration.
- The recalibration did not change the OAT's difficulty. Scores achieved after May 1, 2009 were somewhat lower than those achieved prior to the recalibration date because the mean score was set back to be as close as possible to 300. This did not indicate a change in test takers' skill levels.
- Scores achieved prior to May 2009 can be compared with other scores from within that prior time period, and scores achieved after May 2009 are comparable with other scores from May 2009 forward. However, scores from different time periods (e.g., scores from May 2008 vs. scores from May 2010) are not considered directly comparable.
 - For example, an examinee who tested in May 2009 and December 2009 would have been scored on the same score scale, and thus the two sets of scores could be directly compared.
 - The scores of an examinee who tested in January 2009 and retested in July 2009 are not directly comparable, because the test is essentially on a different measurement scale across those two different time periods.

Information on the details of this change was distributed to all optometry schools, pre-health education advisors, and potential examinees in March of 2009. Frequency distributions, or percentile equivalents of scale scores, for the new OAT subtest scales were generated, and the means and standard deviations for the scale scores were computed.

Evaluation of the Optometry Admission Test Program

When considering an examination's effectiveness, two basic psychometric aspects of tests must be considered: Reliability and validity.

Reliability is the precision or consistency of the assessment. For the OAT Program, a measure of internal consistency reliability, KR-20, is calculated for each scale (with the exception of the Academic Average for which a composite reliability estimate is determined). Table 1 lists reliability estimates based on administrations of the OAT occurring in 2024.

To ensure the OAT is capable of fulfilling its purpose, it is essential to understand the content and predictive validity evidence available for each section of the test. For the OAT, Test Construction Team members provide support for content validity. These individuals are experts in the subject areas corresponding to their team. For the Reading Comprehension Test, passages and items are produced by published writers typically possessing a minimum of a master's degree in English language arts or the sciences, in addition to educational writing experience.

Predictive validity is assessed by examining correlations among OAT scores and students' grades in their first and second years of optometry school. The predictive power of the OAT varies from school to school and from one OAT section to another. The *OAT Validity Study* report provides detailed information on this topic, and is available at [ADA.org/OAT](https://ada.org/OAT). Validity is also addressed in the article, *Validity of the Optometry Admission Test in Predicting Performance in Schools and Colleges of Optometry* (Kramer & Johnston, 1997).

Introduction to the Tables

The tables in this report describe performance on the OAT by gender, ethnic identification, and Hispanic origin. Correlations among the OAT disciplines are also presented.

The data in the tables are based on examinees who chose to self-report their gender and ethnic identification. Not all examinees chose to do so. The total count for each table varies because some examinees chose not to answer the questions, but the percentages will add up to 100% because the data is based solely on respondents. The columns for gender, ethnicity, and Hispanic origin—as well as for total percentage and total count—can be added vertically. The statistics in the tables in this User Guide were based on all participating examinees.

The OAT Program publishes an *OAT Candidate Guide* each year with information about the testing policies, procedures, and eligibility requirements for the calendar year. For additional information concerning the requirements that were applicable to the tested group, please consult the *OAT Candidate Guide* which is available at [ADA.org/OAT](https://ada.org/OAT).

References

Kramer, G.A. & Johnston, J. (1997). Validity of the Optometry Admission Test in predicting performance in schools and colleges of optometry. *Optometric Education*, 22(2), 53-59.

Part Two: 2024 Data Tables

Table 1
Overall Descriptive Statistics
2024

N = 3,432	Number of Items	Mean	S.D.	Reliability
Quantitative Reasoning	40	315.8	47.35	0.86
Reading Comprehension	50	328.1	43.92	0.82
Biology	40	305.4	53.14	0.87
General Chemistry	30	303.6	50.82	0.84
Organic Chemistry	30	296.5	49.14	0.87
Physics	40	280.4	43.89	0.88
Total Science	140	293.9	50.53	0.95
Academic Average	230	305.8	40.22	0.96

N = Number of administrations.
S.D. = Standard deviation.

Table 2
Optometry Admission Test
2024
Biology Score by Gender

Score	Females	Males	Total	Count
200	3.2%	2.4%	3.0%	102
210	1.1%	0.9%	1.1%	37
220	2.6%	2.2%	2.5%	85
230	2.5%	1.9%	2.3%	80
240	3.5%	3.8%	3.6%	122
250	6.9%	5.8%	6.6%	227
260	5.6%	4.7%	5.3%	182
270	6.8%	5.2%	6.4%	219
280	7.5%	7.2%	7.4%	254
290	6.6%	7.1%	6.7%	230
300	6.3%	7.5%	6.6%	227
310	7.3%	8.1%	7.5%	257
320	4.8%	6.3%	5.2%	176
330	5.8%	5.9%	5.8%	199
340	5.1%	4.3%	4.9%	167
350	4.5%	3.9%	4.3%	148
360	4.7%	5.7%	5.0%	170
370	2.9%	3.2%	3.0%	102
380	3.0%	3.2%	3.1%	105
390	1.2%	1.7%	1.3%	46
400	7.8%	9.2%	8.2%	280
Percentage	74.26%	25.74%	100.00%	3415
Mean	303.91	309.42	305.33	
SD	53.26	52.67	53.16	
Count	2536	879	3415	

Table 3
Optometry Admission Test
2024
General Chemistry Score by Gender

Score	Females	Males	Total	Count
200	3.0%	1.7%	2.7%	92
210	0.7%	0.8%	0.8%	26
220	2.6%	1.6%	2.3%	79
230	3.0%	3.0%	3.0%	102
240	4.9%	2.0%	4.1%	141
250	4.7%	4.4%	4.7%	159
260	6.7%	5.3%	6.3%	216
270	7.0%	5.5%	6.6%	225
280	7.4%	6.8%	7.3%	248
290	7.7%	7.5%	7.6%	261
300	7.4%	7.4%	7.4%	252
310	8.4%	8.6%	8.5%	289
320	6.0%	6.3%	6.1%	208
330	6.0%	6.6%	6.1%	209
340	5.0%	6.6%	5.4%	184
350	3.2%	3.8%	3.4%	115
360	4.1%	5.2%	4.4%	151
370	2.1%	1.9%	2.0%	69
380	2.4%	3.6%	2.8%	94
390	2.9%	2.8%	2.9%	98
400	4.9%	8.4%	5.8%	197
Percentage	74.26%	25.74%	100.00%	3415
Mean	300.61	311.89	303.51	
SD	50.46	50.78	50.77	
Count	2536	879	3415	

Table 4
Optometry Admission Test
2024
Organic Chemistry Score by Gender

Score	Females	Males	Total	Count
200	1.7%	1.7%	1.7%	58
210	2.0%	1.3%	1.8%	61
220	3.1%	2.3%	2.9%	98
230	3.5%	3.3%	3.5%	118
240	5.0%	4.8%	4.9%	169
250	6.2%	4.7%	5.8%	198
260	9.2%	8.1%	8.9%	305
270	7.1%	7.1%	7.1%	241
280	8.0%	6.3%	7.6%	259
290	10.2%	9.3%	10.0%	341
300	5.6%	5.0%	5.4%	186
310	7.0%	7.1%	7.0%	240
320	4.8%	6.6%	5.2%	179
330	5.2%	5.9%	5.4%	183
340	5.0%	6.0%	5.3%	181
350	4.6%	4.1%	4.5%	152
360	2.6%	2.5%	2.5%	87
370	2.4%	3.9%	2.8%	95
380	1.4%	1.9%	1.6%	53
390	1.7%	1.9%	1.7%	59
400	3.8%	6.4%	4.5%	152
Percentage	74.26%	25.74%	100.00%	3415
Mean	294.22	302.43	296.33	
SD	48.33	50.74	49.08	
Count	2536	879	3415	

Table 5
Optometry Admission Test
2024
Reading Comprehension Score by Gender

Score	Females	Males	Total	Count
200	0.3%	0.6%	0.4%	12
210	0.2%	0.0%	0.2%	6
220	0.4%	0.3%	0.4%	14
230	0.9%	1.0%	0.9%	31
240	1.1%	0.9%	1.0%	35
250	2.5%	1.0%	2.1%	73
260	2.9%	2.4%	2.8%	95
270	4.3%	4.1%	4.2%	144
280	5.6%	5.3%	5.6%	190
290	6.4%	6.5%	6.4%	219
300	6.9%	7.8%	7.1%	244
310	7.9%	6.8%	7.6%	260
320	8.3%	6.5%	7.8%	267
330	9.5%	9.7%	9.5%	325
340	7.8%	7.6%	7.8%	265
350	7.0%	8.6%	7.4%	253
360	7.0%	8.3%	7.3%	251
370	1.9%	1.7%	1.8%	62
380	8.9%	8.6%	8.8%	301
390	1.6%	1.9%	1.7%	58
400	8.7%	10.1%	9.1%	310
Percentage	74.26%	25.74%	100.00%	3415
Mean	327.12	330.69	328.04	
SD	44.01	43.74	43.96	
Count	2536	879	3415	

Table 6
Optometry Admission Test
2024
Physics Score by Gender

Score	Females	Males	Total	Count
200	2.9%	1.9%	2.7%	91
210	2.9%	1.1%	2.4%	83
220	4.3%	2.6%	3.9%	133
230	5.4%	4.1%	5.0%	172
240	8.0%	5.8%	7.4%	253
250	11.2%	11.6%	11.3%	387
260	7.6%	5.9%	7.2%	246
270	9.6%	7.6%	9.1%	310
280	8.3%	5.3%	7.6%	258
290	9.9%	12.3%	10.5%	358
300	4.5%	6.7%	5.1%	173
310	7.2%	8.1%	7.4%	253
320	4.9%	5.3%	5.0%	171
330	3.7%	4.1%	3.8%	131
340	2.7%	4.1%	3.1%	105
350	2.1%	3.6%	2.5%	84
360	1.3%	2.4%	1.6%	55
370	0.6%	1.5%	0.8%	28
380	1.3%	2.5%	1.6%	56
390	0.7%	1.5%	0.9%	30
400	0.9%	1.8%	1.1%	38
Percentage	74.26%	25.74%	100.00%	3415
Mean	276.98	290.03	280.34	
SD	42.60	45.78	43.81	
Count	2536	879	3415	

Table 7
Optometry Admission Test
2024
Quantitative Reasoning Score by Gender

Score	Females	Males	Total	Count
200	1.0%	0.7%	0.9%	32
210	0.7%	0.1%	0.6%	20
220	1.3%	0.3%	1.1%	37
230	1.7%	1.4%	1.6%	56
240	2.2%	3.1%	2.5%	84
250	3.8%	2.4%	3.5%	118
260	5.1%	2.2%	4.4%	149
270	6.8%	4.0%	6.1%	207
280	7.3%	4.2%	6.5%	222
290	7.5%	5.3%	7.0%	238
300	9.2%	7.3%	8.7%	298
310	8.1%	6.3%	7.6%	261
320	7.8%	7.1%	7.6%	261
330	7.1%	7.3%	7.1%	244
340	6.6%	8.5%	7.1%	242
350	5.9%	8.0%	6.4%	220
360	3.4%	6.6%	4.2%	145
370	4.2%	5.7%	4.6%	157
380	1.5%	3.9%	2.1%	72
390	2.5%	4.0%	2.9%	98
400	5.9%	11.8%	7.4%	254
Percentage	74.26%	25.74%	100.00%	3415
Mean	310.92	329.58	315.72	
SD	46.34	47.56	47.36	
Count	2536	879	3415	

Table 8
Optometry Admission Test
2024
Total Science Score by Gender

Score	Females	Males	Total	Count
200	2.3%	1.8%	2.2%	75
210	2.3%	1.6%	2.1%	73
220	3.7%	2.2%	3.3%	112
230	4.3%	3.2%	4.0%	136
240	5.8%	4.9%	5.6%	190
250	7.3%	5.8%	6.9%	236
260	8.4%	6.4%	7.9%	269
270	7.9%	6.4%	7.5%	256
280	7.8%	7.6%	7.7%	264
290	8.1%	7.1%	7.8%	267
300	6.6%	8.0%	7.0%	238
310	5.8%	7.1%	6.1%	208
320	5.4%	6.0%	5.5%	189
330	4.9%	6.8%	5.4%	184
340	3.3%	4.2%	3.5%	120
350	3.7%	4.6%	3.9%	134
360	2.8%	3.0%	2.8%	96
370	2.5%	2.5%	2.5%	86
380	1.5%	2.4%	1.8%	60
390	1.9%	1.7%	1.9%	64
400	3.8%	6.9%	4.6%	158
Percentage	74.26%	25.74%	100.00%	3415
Mean	290.95	302.09	293.82	
SD	49.96	51.09	50.48	
Count	2536	879	3415	

Table 9
Optometry Admission Test
2024
Academic Average Score by Gender

Score	Females	Males	Total	Count
200	0.0%	0.1%	0.1%	2
210	0.1%	0.2%	0.1%	5
220	0.7%	0.5%	0.7%	23
230	1.9%	1.1%	1.7%	57
240	3.0%	2.0%	2.8%	95
250	5.4%	3.1%	4.8%	163
260	6.3%	5.9%	6.2%	211
270	8.2%	5.8%	7.6%	260
280	10.2%	6.9%	9.4%	320
290	10.3%	8.4%	9.8%	335
300	9.1%	9.1%	9.1%	311
310	8.5%	8.5%	8.5%	291
320	6.9%	9.9%	7.7%	262
330	7.5%	9.0%	7.8%	268
340	5.6%	7.6%	6.1%	208
350	4.3%	5.5%	4.6%	156
360	3.7%	4.2%	3.8%	130
370	3.4%	3.6%	3.5%	119
380	2.5%	4.0%	2.9%	99
390	1.6%	3.1%	2.0%	67
400	0.8%	1.4%	1.0%	33
Percentage	74.26%	25.74%	100.00%	3415
Mean	303.09	313.12	305.67	
SD	39.79	40.44	40.19	
Count	2536	879	3415	

Table 10
Optometry Admission Test
2024
Biology Score by Ethnic Identification

Score	Native American	Asian	Black	Pacific Islander	White	Multi	Total	Count
200	0.0%	2.3%	6.2%	0.0%	2.6%	4.8%	3.0%	89
210	0.0%	1.0%	2.1%	0.0%	1.1%	1.5%	1.1%	34
220	0.0%	2.0%	4.8%	0.0%	2.6%	2.9%	2.6%	76
230	16.7%	1.2%	4.8%	0.0%	2.3%	3.5%	2.3%	69
240	0.0%	3.3%	4.1%	0.0%	3.6%	4.8%	3.7%	110
250	8.3%	5.0%	13.1%	33.3%	5.9%	9.4%	6.5%	194
260	8.3%	4.8%	8.3%	0.0%	5.2%	6.5%	5.4%	161
270	0.0%	5.3%	7.6%	33.3%	5.9%	8.8%	6.2%	185
280	33.3%	7.0%	4.1%	0.0%	7.7%	7.9%	7.4%	222
290	16.7%	6.1%	4.8%	0.0%	7.4%	8.3%	7.0%	208
300	0.0%	5.8%	7.6%	0.0%	7.1%	5.4%	6.4%	190
310	8.3%	7.7%	5.5%	0.0%	7.5%	7.9%	7.6%	225
320	0.0%	5.1%	5.5%	0.0%	5.8%	3.8%	5.2%	154
330	8.3%	6.0%	6.9%	0.0%	5.9%	4.8%	5.8%	172
340	0.0%	5.2%	4.8%	0.0%	4.7%	4.2%	4.7%	141
350	0.0%	5.4%	1.4%	0.0%	4.6%	2.7%	4.4%	130
360	0.0%	5.4%	2.8%	33.3%	5.7%	2.7%	5.0%	148
370	0.0%	3.8%	1.4%	0.0%	2.9%	2.5%	3.0%	90
380	0.0%	4.2%	2.1%	0.0%	2.8%	1.3%	3.0%	88
390	0.0%	2.1%	1.4%	0.0%	1.1%	1.0%	1.4%	43
400	0.0%	11.8%	0.7%	0.0%	7.9%	5.4%	8.4%	251
Percentage	0.40%	33.83%	4.87%	0.10%	44.70%	16.11%	100.00%	2980
Mean	275.83	315.64	281.31	293.33	305.92	290.63	305.42	
SD	29.68	54.25	48.79	58.59	52.10	51.29	53.42	
Count	12	1008	145	3	1332	480	2980	

Table 11
Optometry Admission Test
2024
General Chemistry Score by Ethnic Identification

Score	Native American	Asian	Black	Pacific Islander	White	Multi	Total	Count
200	0.0%	2.1%	4.8%	33.3%	2.5%	2.3%	2.4%	73
210	0.0%	0.8%	3.4%	0.0%	0.3%	1.5%	0.8%	24
220	8.3%	1.3%	4.8%	0.0%	2.3%	3.8%	2.3%	69
230	0.0%	1.9%	6.9%	33.3%	2.9%	5.4%	3.2%	95
240	8.3%	3.2%	8.3%	0.0%	3.5%	6.5%	4.1%	122
250	16.7%	3.7%	6.9%	0.0%	4.6%	5.6%	4.6%	137
260	8.3%	5.0%	6.9%	0.0%	5.9%	9.2%	6.2%	184
270	16.7%	4.8%	8.3%	0.0%	6.2%	8.8%	6.3%	187
280	16.7%	6.9%	9.7%	0.0%	7.7%	7.9%	7.6%	226
290	8.3%	7.2%	8.3%	0.0%	7.8%	9.2%	7.9%	234
300	8.3%	6.3%	6.9%	0.0%	8.9%	6.7%	7.6%	225
310	8.3%	7.6%	4.8%	0.0%	8.9%	9.4%	8.4%	249
320	0.0%	6.6%	5.5%	33.3%	5.9%	5.2%	6.0%	179
330	0.0%	6.9%	4.1%	0.0%	6.3%	4.8%	6.1%	183
340	0.0%	7.7%	2.1%	0.0%	5.0%	2.1%	5.3%	157
350	0.0%	5.6%	1.4%	0.0%	2.8%	1.9%	3.5%	104
360	0.0%	5.5%	2.8%	0.0%	4.9%	2.1%	4.5%	134
370	0.0%	2.0%	1.4%	0.0%	2.4%	1.0%	2.0%	59
380	0.0%	3.0%	1.4%	0.0%	2.9%	1.9%	2.7%	80
390	0.0%	3.0%	0.7%	0.0%	3.5%	2.1%	2.9%	87
400	0.0%	9.0%	0.7%	0.0%	5.0%	2.9%	5.8%	172
Percentage	0.40%	33.83%	4.87%	0.10%	44.70%	16.11%	100.00%	2980
Mean	268.33	314.38	276.34	250.00	304.83	287.58	303.69	
SD	25.88	50.93	45.58	62.45	49.60	46.93	50.61	
Count	12	1008	145	3	1332	480	2980	

Table 12
Optometry Admission Test
2024
Organic Chemistry Score by Ethnic Identification

Score	Native American	Asian	Black	Pacific Islander	White	Multi	Total	Count
200	8.3%	1.5%	5.5%	0.0%	1.3%	2.1%	1.7%	51
210	0.0%	1.3%	6.9%	0.0%	1.7%	2.1%	1.9%	56
220	8.3%	2.6%	6.9%	0.0%	2.2%	4.6%	3.0%	88
230	0.0%	2.3%	4.1%	0.0%	3.5%	4.8%	3.3%	99
240	0.0%	4.4%	3.4%	0.0%	4.7%	5.4%	4.6%	137
250	0.0%	4.0%	9.0%	33.3%	6.3%	7.1%	5.8%	172
260	0.0%	8.0%	13.1%	0.0%	8.6%	12.3%	9.2%	273
270	16.7%	6.1%	6.9%	0.0%	6.7%	10.4%	7.1%	212
280	8.3%	7.3%	8.3%	0.0%	7.2%	9.4%	7.7%	228
290	16.7%	10.2%	9.0%	33.3%	10.8%	7.7%	10.1%	300
300	16.7%	5.7%	4.8%	0.0%	4.7%	6.0%	5.3%	158
310	8.3%	6.8%	4.8%	0.0%	7.4%	4.6%	6.6%	197
320	8.3%	5.3%	4.1%	33.3%	5.9%	4.8%	5.4%	162
330	0.0%	5.6%	3.4%	0.0%	5.6%	4.8%	5.3%	158
340	8.3%	5.5%	0.7%	0.0%	6.2%	3.5%	5.2%	156
350	0.0%	5.8%	2.8%	0.0%	5.1%	1.9%	4.7%	139
360	0.0%	3.9%	0.7%	0.0%	2.7%	1.0%	2.7%	81
370	0.0%	3.6%	2.8%	0.0%	2.5%	2.3%	2.8%	84
380	0.0%	2.0%	0.0%	0.0%	2.0%	0.2%	1.6%	47
390	0.0%	2.0%	1.4%	0.0%	1.7%	1.3%	1.7%	50
400	0.0%	6.4%	1.4%	0.0%	3.5%	3.8%	4.4%	132
Percentage	0.40%	33.83%	4.87%	0.10%	44.70%	16.11%	100.00%	2980
Mean	282.50	304.67	272.41	286.67	297.58	284.02	296.50	
SD	39.57	50.45	47.04	35.12	47.69	46.60	49.16	
Count	12	1008	145	3	1332	480	2980	

Table 13
Optometry Admission Test
2024
Reading Comprehension Score by Ethnic Identification

Score	Native American	Asian	Black	Pacific Islander	White	Multi	Total	Count
200	0.0%	0.4%	0.7%	0.0%	0.2%	0.2%	0.3%	9
210	0.0%	0.2%	0.0%	0.0%	0.2%	0.0%	0.2%	5
220	0.0%	0.3%	0.0%	0.0%	0.7%	0.2%	0.4%	13
230	0.0%	0.6%	2.8%	0.0%	0.7%	1.3%	0.8%	25
240	0.0%	0.8%	0.7%	0.0%	0.8%	2.3%	1.0%	30
250	0.0%	1.4%	2.8%	0.0%	1.9%	3.3%	2.0%	59
260	0.0%	1.9%	6.9%	0.0%	2.1%	4.6%	2.7%	79
270	8.3%	3.7%	4.8%	0.0%	4.3%	5.4%	4.3%	128
280	16.7%	4.6%	11.7%	33.3%	4.4%	8.5%	5.5%	165
290	0.0%	6.5%	10.3%	0.0%	5.2%	9.0%	6.5%	193
300	8.3%	7.4%	6.9%	33.3%	6.8%	8.5%	7.3%	219
310	8.3%	8.0%	7.6%	0.0%	7.4%	6.5%	7.5%	223
320	8.3%	8.0%	7.6%	0.0%	7.8%	6.3%	7.6%	227
330	0.0%	9.4%	8.3%	0.0%	9.2%	11.0%	9.5%	283
340	16.7%	8.5%	9.0%	0.0%	8.7%	4.8%	8.1%	240
350	8.3%	7.2%	4.1%	0.0%	8.2%	7.5%	7.6%	225
360	0.0%	7.7%	6.2%	0.0%	8.1%	5.2%	7.4%	220
370	0.0%	2.1%	0.0%	0.0%	2.0%	1.5%	1.8%	55
380	8.3%	10.5%	4.8%	0.0%	8.6%	6.5%	8.7%	259
390	8.3%	1.7%	2.1%	0.0%	1.8%	1.5%	1.7%	52
400	8.3%	8.9%	2.8%	33.3%	11.0%	6.0%	9.1%	271
Percentage	0.40%	33.83%	4.87%	0.10%	44.70%	16.11%	100.00%	2980
Mean	330.00	331.41	310.62	326.67	332.02	317.19	328.37	
SD	44.31	42.38	41.75	64.29	43.69	43.87	43.68	
Count	12	1008	145	3	1332	480	2980	

Table 14
Optometry Admission Test
2024
Physics Score by Ethnic Identification

Score	Native American	Asian	Black	Pacific Islander	White	Multi	Total	Count
200	0.0%	1.7%	9.0%	0.0%	1.9%	4.2%	2.5%	75
210	0.0%	1.7%	2.8%	0.0%	2.3%	5.2%	2.6%	77
220	16.7%	2.6%	6.2%	0.0%	3.8%	5.0%	3.8%	112
230	0.0%	4.2%	11.0%	33.3%	4.5%	6.5%	5.0%	150
240	16.7%	5.3%	13.1%	0.0%	7.3%	11.0%	7.5%	224
250	16.7%	8.9%	16.6%	0.0%	10.4%	15.2%	11.0%	328
260	0.0%	5.9%	7.6%	0.0%	7.5%	9.0%	7.1%	213
270	16.7%	9.3%	9.7%	0.0%	8.3%	9.4%	8.9%	266
280	16.7%	8.2%	5.5%	33.3%	8.0%	4.8%	7.5%	223
290	8.3%	11.4%	4.8%	0.0%	11.5%	10.8%	11.0%	328
300	8.3%	4.9%	0.0%	0.0%	6.8%	2.5%	5.1%	153
310	0.0%	8.6%	6.9%	0.0%	8.0%	2.9%	7.3%	218
320	0.0%	6.3%	2.1%	33.3%	4.9%	3.1%	4.9%	147
330	0.0%	5.1%	0.7%	0.0%	3.5%	3.1%	3.8%	114
340	0.0%	3.9%	0.7%	0.0%	3.1%	2.3%	3.1%	92
350	0.0%	3.5%	1.4%	0.0%	2.5%	1.7%	2.6%	78
360	0.0%	2.2%	1.4%	0.0%	1.7%	0.8%	1.7%	50
370	0.0%	1.5%	0.0%	0.0%	0.7%	0.2%	0.8%	25
380	0.0%	1.9%	0.0%	0.0%	1.6%	1.3%	1.5%	46
390	0.0%	1.3%	0.0%	0.0%	0.8%	0.0%	0.8%	24
400	0.0%	1.9%	0.7%	0.0%	0.9%	1.0%	1.2%	37
	0.40%	33.83%	4.87%	0.10%	44.70%	16.11%	100.00%	2980
Percentage								
Mean	259.17	290.09	256.00	276.67	281.66	266.25	280.68	
SD	26.44	44.78	37.92	45.09	42.30	41.49	43.85	
Count	12	1008	145	3	1332	480	2980	

Table 15
Optometry Admission Test
2024
Quantitative Reasoning Score by Ethnic Identification

Score	Native American	Asian	Black	Pacific Islander	White	Multi	Total	Count
200	0.0%	0.9%	1.4%	0.0%	0.5%	2.1%	0.9%	28
210	0.0%	0.4%	2.8%	0.0%	0.2%	0.8%	0.5%	15
220	8.3%	1.0%	2.8%	0.0%	0.9%	1.3%	1.1%	33
230	0.0%	1.1%	6.2%	0.0%	1.1%	2.3%	1.5%	45
240	8.3%	1.8%	8.3%	0.0%	1.7%	2.9%	2.2%	67
250	8.3%	2.9%	7.6%	0.0%	2.6%	5.0%	3.4%	100
260	8.3%	3.9%	7.6%	33.3%	3.5%	6.9%	4.4%	132
270	16.7%	4.3%	11.0%	33.3%	5.3%	10.2%	6.1%	182
280	0.0%	5.1%	6.9%	0.0%	6.2%	9.0%	6.2%	186
290	25.0%	6.2%	9.0%	0.0%	6.3%	10.2%	7.1%	211
300	0.0%	7.4%	9.7%	0.0%	9.8%	7.3%	8.5%	254
310	16.7%	7.2%	10.3%	0.0%	8.6%	5.0%	7.7%	229
320	8.3%	7.0%	6.2%	0.0%	7.8%	9.0%	7.7%	228
330	0.0%	7.3%	1.4%	0.0%	8.9%	4.4%	7.2%	215
340	0.0%	7.3%	2.1%	0.0%	7.9%	6.7%	7.2%	214
350	0.0%	7.7%	2.1%	0.0%	7.0%	5.4%	6.7%	200
360	0.0%	5.9%	1.4%	0.0%	3.9%	3.8%	4.4%	131
370	0.0%	5.5%	0.7%	0.0%	5.2%	1.5%	4.4%	132
380	0.0%	2.5%	0.7%	0.0%	2.4%	1.3%	2.1%	64
390	0.0%	3.8%	1.4%	0.0%	2.9%	1.5%	2.9%	86
400	0.0%	10.9%	0.7%	33.3%	7.4%	3.8%	7.7%	228
Percentage	0.40%	33.83%	4.87%	0.10%	44.70%	16.11%	100.00%	2980
Mean	276.67	324.99	280.55	310.00	320.25	300.00	316.47	
SD	30.55	48.22	40.75	78.10	44.42	45.30	47.21	
Count	12	1008	145	3	1332	480	2980	

Table 16
Optometry Admission Test
2024
Total Science Score by Ethnic Identification

Score	Native American	Asian	Black	Pacific Islander	White	Multi	Total	Count
200	8.3%	1.3%	8.3%	0.0%	1.9%	2.7%	2.1%	64
210	0.0%	0.8%	5.5%	0.0%	2.2%	3.5%	2.1%	62
220	0.0%	3.5%	7.6%	0.0%	2.9%	4.2%	3.5%	104
230	8.3%	3.4%	9.0%	0.0%	3.6%	6.0%	4.2%	125
240	8.3%	3.9%	7.6%	33.3%	4.9%	9.2%	5.4%	161
250	0.0%	5.0%	6.9%	33.3%	6.5%	10.0%	6.6%	196
260	8.3%	5.9%	6.9%	0.0%	7.7%	12.1%	7.8%	231
270	25.0%	6.9%	8.3%	0.0%	7.6%	8.8%	7.7%	228
280	16.7%	7.5%	10.3%	0.0%	8.0%	6.5%	7.8%	231
290	8.3%	7.5%	9.0%	0.0%	7.4%	8.8%	7.7%	230
300	8.3%	7.1%	3.4%	0.0%	7.4%	5.8%	6.8%	204
310	8.3%	6.9%	3.4%	0.0%	7.5%	3.5%	6.5%	193
320	0.0%	6.2%	3.4%	0.0%	6.3%	3.3%	5.6%	167
330	0.0%	6.4%	3.4%	0.0%	5.6%	2.5%	5.3%	157
340	0.0%	3.7%	0.7%	33.3%	4.0%	1.5%	3.3%	99
350	0.0%	5.6%	1.4%	0.0%	3.6%	2.7%	4.0%	119
360	0.0%	2.8%	2.1%	0.0%	2.9%	2.1%	2.7%	79
370	0.0%	2.7%	1.4%	0.0%	2.7%	2.3%	2.6%	76
380	0.0%	2.4%	0.0%	0.0%	1.9%	1.0%	1.8%	54
390	0.0%	3.5%	0.0%	0.0%	1.6%	0.4%	1.9%	58
400	0.0%	7.1%	1.4%	0.0%	4.0%	3.1%	4.8%	142
Percentage	0.40%	33.83%	4.87%	0.10%	44.70%	16.11%	100.00%	2980
Mean	266.67	305.19	264.83	276.67	295.05	277.31	294.02	
SD	30.85	51.77	45.06	55.08	48.88	47.20	50.67	
Count	12	1008	145	3	1332	480	2980	

Table 17
Optometry Admission Test
2024
Academic Average Score by Ethnic Identification

Score	Native American	Asian	Black	Pacific Islander	White	Multi	Total	Count
200	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	1
210	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%	0.1%	3
220	0.0%	0.6%	1.4%	0.0%	0.7%	0.4%	0.6%	19
230	8.3%	0.8%	9.7%	0.0%	0.9%	2.9%	1.6%	49
240	0.0%	2.2%	5.5%	0.0%	2.7%	4.6%	3.0%	88
250	8.3%	4.2%	11.0%	0.0%	3.8%	6.9%	4.8%	142
260	0.0%	3.6%	9.7%	66.7%	6.0%	10.4%	6.1%	182
270	16.7%	5.8%	9.7%	0.0%	6.5%	12.1%	7.3%	219
280	8.3%	7.9%	11.0%	0.0%	8.7%	12.7%	9.2%	274
290	33.3%	9.1%	11.7%	0.0%	10.4%	9.6%	10.0%	297
300	8.3%	8.6%	6.2%	0.0%	9.8%	8.3%	9.0%	267
310	8.3%	9.2%	6.9%	0.0%	9.2%	7.5%	8.8%	262
320	8.3%	8.3%	5.5%	0.0%	7.8%	6.0%	7.6%	226
330	0.0%	9.1%	3.4%	0.0%	8.9%	4.2%	7.9%	235
340	0.0%	6.6%	4.8%	0.0%	7.4%	3.1%	6.3%	188
350	0.0%	4.9%	0.7%	33.3%	4.8%	3.8%	4.5%	133
360	0.0%	5.3%	0.7%	0.0%	3.5%	2.9%	3.8%	114
370	0.0%	4.9%	1.4%	0.0%	3.3%	1.0%	3.4%	100
380	0.0%	4.4%	0.0%	0.0%	3.0%	1.3%	3.0%	90
390	0.0%	3.1%	0.7%	0.0%	1.8%	1.0%	2.0%	61
400	0.0%	1.4%	0.0%	0.0%	0.8%	1.0%	1.0%	30
Percentage	0.40%	33.83%	4.87%	0.10%	44.70%	16.11%	100.00%	2980
Mean	282.50	314.44	280.28	290.00	307.80	291.75	306.00	
SD	24.91	40.74	35.43	51.96	38.69	37.84	40.22	
Count	12	1008	145	3	1332	480	2980	

Table 18
Optometry Admission Test
2024
OAT Scores by Examinees of Hispanic Origin

Score	BIO	GCH	OCH	RCT	PHY	QRT	TS	AA
200	3.8%	6.6%	2.8%	0.0%	1.9%	0.9%	2.8%	0.0%
210	1.9%	0.9%	1.9%	0.0%	3.8%	0.9%	4.7%	0.9%
220	5.7%	4.7%	1.9%	0.9%	11.3%	1.9%	1.9%	1.9%
230	1.9%	2.8%	6.6%	1.9%	10.4%	7.5%	3.8%	1.9%
240	4.7%	9.4%	8.5%	1.9%	9.4%	10.4%	13.2%	1.9%
250	13.2%	8.5%	7.5%	4.7%	19.8%	6.6%	19.8%	8.5%
260	9.4%	8.5%	13.2%	4.7%	11.3%	7.5%	11.3%	9.4%
270	10.4%	10.4%	12.3%	3.8%	12.3%	9.4%	8.5%	24.5%
280	8.5%	9.4%	4.7%	4.7%	0.9%	6.6%	9.4%	13.2%
290	5.7%	6.6%	11.3%	10.4%	5.7%	6.6%	5.7%	6.6%
300	5.7%	6.6%	7.5%	11.3%	4.7%	12.3%	4.7%	13.2%
310	2.8%	10.4%	7.5%	8.5%	4.7%	6.6%	2.8%	4.7%
320	3.8%	3.8%	3.8%	12.3%	1.9%	8.5%	0.9%	1.9%
330	4.7%	2.8%	0.9%	10.4%	0.0%	0.9%	3.8%	4.7%
340	3.8%	2.8%	4.7%	3.8%	0.9%	2.8%	1.9%	1.9%
350	3.8%	0.0%	2.8%	5.7%	0.0%	0.9%	1.9%	0.9%
360	3.8%	0.9%	0.0%	3.8%	0.0%	4.7%	0.9%	2.8%
370	0.9%	1.9%	0.0%	0.9%	0.0%	2.8%	0.0%	0.0%
380	1.9%	0.9%	0.0%	7.5%	0.9%	0.0%	0.9%	0.9%
390	0.9%	0.9%	0.0%	0.0%	0.0%	0.9%	0.0%	0.0%
400	2.8%	0.9%	1.9%	2.8%	0.0%	0.9%	0.9%	0.0%
Mean	284.06	276.04	276.42	311.98	255.85	284.91	266.98	282.45
SD	49.14	43.59	39.38	40.62	31.80	42.72	38.38	31.19
Count	106	106	106	106	106	106	106	106

BIO=Biology, GCH=General Chemistry, OCH=Organic Chemistry, RCT=Reading Comprehension Test, PHY=Physics, QRT=Quantitative Reasoning Test, TS=Total Science, and AA=Academic Average.

Table 19
Correlations among OAT Disciplines (N=3,432)
2024

	BIO	GEN	ORG	QRT	RCT	PHY	TS
BIO							
GEN	0.74						
ORG	0.70	0.73					
QRT	0.61	0.66	0.57				
RCT	0.53	0.50	0.44	0.59			
PHY	0.71	0.77	0.71	0.69	0.51		
TS	0.89	0.89	0.87	0.71	0.56	0.90	
AVG	0.86	0.88	0.83	0.82	0.70	0.88	0.97

BIO = Biology; GEN = General Chemistry; ORG=Organic Chemistry; QRT = Quantitative Reasoning Test;
 RCT=Reading Comprehension Test; PHY = Physics; TS= Total Science; AVG=Academic Average.

Part Three: Test Specifications
Survey of Natural Sciences: Biology

40 items

1.1 Cell and Molecular Biology

- 1.1.1 Cell metabolism
- 1.1.2 Cellular processes
- 1.1.3 Thermodynamics
- 1.1.4 Mitosis/meiosis
- 1.1.5 Cell structure and function
- 1.1.6 Experimental cell biology
- 1.1.7 Biomolecules
- 1.1.8 Integrated relationships

1.2 Diversity of Life

- 1.2.1 Viruses
- 1.2.2 Archaeobacteria
- 1.2.3 Eubacteria
- 1.2.4 Fungi
- 1.2.5 Protista
- 1.2.6 Plantae
- 1.2.7 Animalia
- 1.2.8 Integrated relationships

1.3 Structure and Function of Systems

- 1.3.1 Integumentary
- 1.3.2 Skeletal
- 1.3.3 Muscular
- 1.3.4 Circulatory
- 1.3.5 Lymphatic/immune
- 1.3.6 Digestive
- 1.3.7 Respiratory
- 1.3.8 Urinary
- 1.3.9 Nervous/sensory
- 1.3.10 Endocrine
- 1.3.11 Reproductive
- 1.3.12 Integrated relationships

1.4 Genetics

- 1.4.1 Molecular genetics
- 1.4.2 Human genetics
- 1.4.3 Classical genetics
- 1.4.4 Chromosomal genetics
- 1.4.5 Genetic technology
- 1.4.6 Developmental mechanisms
- 1.4.7 Genomics
- 1.4.8 Gene expression
- 1.4.9 Epigenetics
- 1.4.10 Integrated relationships

1.5 Evolution and Ecology

- 1.5.1 Natural selection
- 1.5.2 Population genetics/speciation
- 1.5.3 Animal behavior
- 1.5.4 Ecology
- 1.5.5 Integrated relationships

Survey of Natural Sciences: General Chemistry

30 items

1. Stoichiometry and General Concepts

- A. Percent composition
- B. Empirical formulae
- C. Balancing equations
- D. Moles and molecular formulas
- E. Molar mass
- F. Density
- G. Calculations from balanced equations

2. Gases

- A. Kinetic molecular theory of gases
- B. Dalton's gas law
- C. Boyle's gas law
- D. Charles's gas law
- E. Ideal gas law

3. Liquids and Solids

- A. Intermolecular forces
- B. Phase changes
- C. Vapor pressure
- D. Structures
- E. Polarity
- F. Properties

4. Solutions

- A. Polarity
- B. Properties
 - 1. Colligative
 - 2. Non-colligative
- C. Forces
- D. Concentration calculations

5. Acids and Bases

- A. pH
- B. Strength
- C. Brønsted-Lowry reactions
- D. Calculations

6. Chemical Equilibria

- A. Molecular
- B. Acid/base
- C. Precipitation
- D. Calculations
- E. Le Chatelier's principle

7. Thermodynamics and Thermochemistry

- A. Laws of thermodynamics
- B. Hess's law
- C. Spontaneity
- D. Enthalpies and entropies
- E. Heat transfer

8. Chemical Kinetics

- A. Rate laws
- B. Activation energy
- C. Half-life

9. Oxidation-Reduction Reactions

- A. Balancing equations
- B. Determination of oxidation numbers
- C. Electrochemical calculations
- D. Electrochemical concepts and terminology

10. Atomic and Molecular Structure

- A. Electron configuration
- B. Orbital types
- C. Lewis-Dot diagrams
- D. Atomic theory
- E. Quantum theory
- F. Molecular geometry
- G. Bond types
- H. Sub-atomic particles

11. Periodic Properties

- A. Representative elements
- B. Transition elements
- C. Periodic trends
- D. Descriptive chemistry

12. Nuclear Reactions

- A. Balancing equations
- B. Binding energy
- C. Decay processes
- D. Particles
- E. Terminology

13. Laboratory

- A. Basic techniques
- B. Equipment
- C. Error analysis
- D. Safety
- E. Data analysis

Survey of Natural Sciences: Organic Chemistry

30 items

- 1. Mechanisms: Energetics and Structure**
 - A. Elimination
 - B. Addition
 - C. Free radical
 - D. Substitution mechanisms
 - E. Other mechanisms and reactions
- 2. Chemical and Physical Properties of Molecules**
 - A. Spectroscopy
 1. ^1H NMR
 2. ^{13}C NMR
 3. Infrared
 4. Multi-spectra
 - B. Structure
 1. Polarity
 2. Intermolecular forces (solubility, melting/boiling point, etc.)
 - C. Laboratory theory and techniques (i.e. TLC, separations, etc.)
- 3. Stereochemistry (Structure Evaluation)**
 - A. Chirality
 - B. Isomer relationships
 - C. Conformations
- 4. Nomenclature**
 - A. IUPAC rules
 - B. Functional groups in molecules
- 5. Individual Reactions of the Major Functional Groups and Combinations of Reactions to Synthesize Compounds**
 - A. Alkene/Alkyne
 1. General
 2. One-step
 3. Multi-step
 - B. Aromatic
 1. General
 2. One-step
 3. Multi-step
 - C. Substitution/Elimination
 1. General
 2. One-step
 3. Multi-step
 - D. Aldehyde/Ketone
 1. General
 2. One-step
 3. Multi-step
 - E. Carboxylic acids and derivatives
 1. General
 2. One-step
 3. Multi-step
 - F. Other
 1. General
 2. One-step
 3. Multi-step
- 6. Acid-Base Chemistry**
 - A. Ranking Acidity/Basicity
 1. Structure Analysis
 2. pH/pKa data analysis
 - B. Prediction of products and equilibria
- 7. Aromatics and Bonding**
 - A. Concept of aromaticity
 - B. Resonance
 - C. Atomic/molecular orbitals
 - D. Hybridization
 - E. Bond angles/lengths

Reading Comprehension

The Reading Comprehension Test contains three reading passages on various scientific topics. Prior understanding of the science topics is not a prerequisite to answering the test items. The reading passages require the ability to read, comprehend, and thoroughly analyze basic scientific information.

The reading passages contain approximately 1,100 to 1,500 words each. Each passage is followed by approximately 15 to 20 items. The total number of items for all three passages is 50.

Physics

40 items

- | | |
|----------------------------------|--|
| 1. Units and Vectors | 8. Waves |
| 2. Linear Kinematics | 9. Fluid Statics |
| 3. Statics | 10. Thermodynamics and Thermal Energy |
| 4. Dynamics | 11. Electrostatics |
| 5. Rotational Motion | 12. D.C. Circuits |
| 6. Energy and Momentum | 13. Optics |
| 7. Simple Harmonic Motion | |

Quantitative Reasoning

40 Items

1. Mathematical Problems

- 1.1 Algebra
 - 1.1.1. Equations and expressions
 - 1.1.2. Inequalities
 - 1.1.3. Exponential notation
 - 1.1.4. Absolute value
 - 1.1.5. Ratios and proportions
 - 1.1.6. Graphical analysis

1.2 Data Analysis

1.3 Interpretation and Sufficiency

1.4 Quantitative Comparison

1.5 Probability and Statistics

2. Applied Mathematics (Word) Problems

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