



202304-5A1D01_01 - Examination report

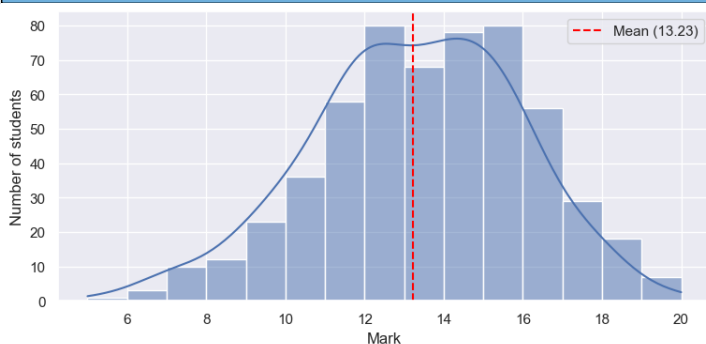
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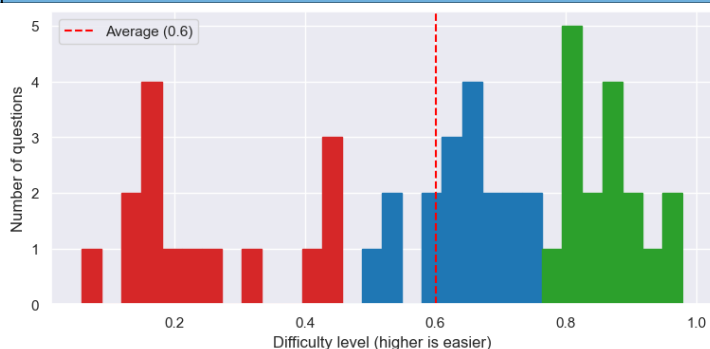
General Statistics

Number of examinees	Number of questions	Maximum possible mark	Minimum achieved mark	Maximum achieved mark
559	50	20.0	5.0	20.0
Mean	Median	Mode	Std Dev	Variance
13.23	13.0	14.0	2.66	7.05
Std error of mean	Std error of measurement	Skew	Kurtosis	Average Difficulty
0.11	0.11	-0.24	-0.15	0.6

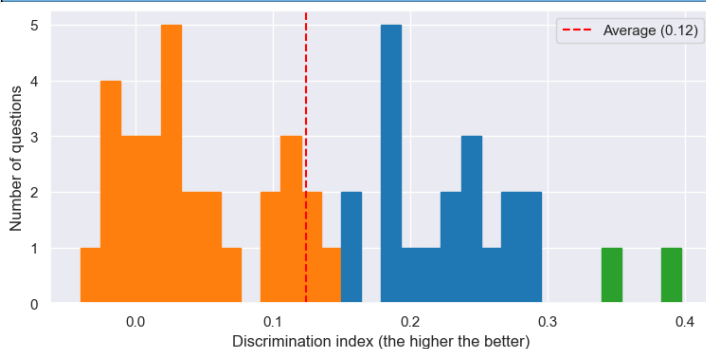
Frequency of marks



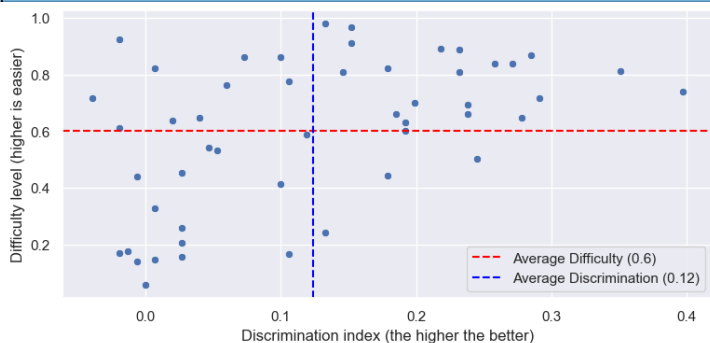
Difficulty levels



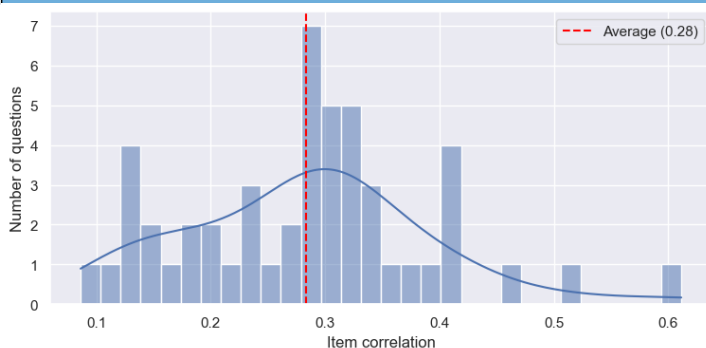
Item discrimination



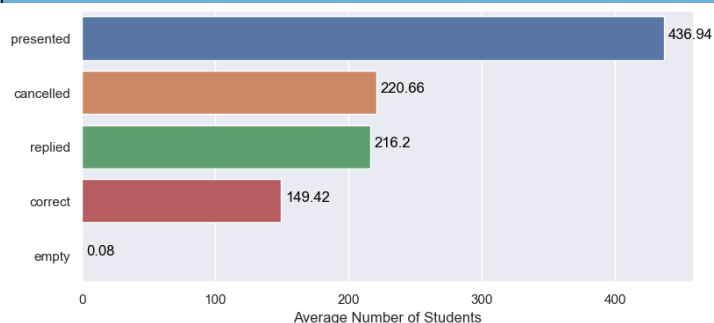
Difficulty vs Discrimination



Item correlation



Average Answering



Findings

Summary (TL;DR)

The maximum possible mark for the exam was 20, while the lowest mark achieved was 5. The highest mark achieved was also 20. The average mark for the exam was 13.2, with half of the students scoring 13 or lower and the most common score being 14. The standard deviation was 2.7, indicating that the marks were somewhat spread out. The skewness was negative, indicating that the distribution was slightly skewed to the left. The kurtosis was negative as well, indicating that the distribution was slightly flatter than a normal distribution.

According to the data collected, the following questions should probably be reviewed:

- Questions Q025, Q030, Q031, Q033, Q037, Q041 and Q043 have been cancelled more than 80% of the time.
- Questions Q005, Q028, Q036, Q041, Q044, Q047 and Q050 have a negative discrimination, meaning that there is a possibility of an error in the questions (incorrect outcome indicated as correct).
- Questions Q026, Q031 and Q048 have distractors that have never been chosen.

Top Cancelled Items

The high frequency of cancelled questions indicates that these particular items pose challenges or difficulties to a substantial portion of the test takers. It suggests that the questions may be unclear, confusing, or poorly designed, leading students to opt for skipping them rather than attempting to answer.

It is crucial to review and analyze these cancelled questions to identify the reasons behind their high cancellation rates. By conducting item analysis, obtaining feedback from test takers, or revisiting the question design and content, it becomes possible to make necessary improvements and enhance the overall quality of the assessment.

following **9 (out of 50)** items have been cancelled more than 80% of the time, this represents **18.0%** of all the questions:

title	presented	cancelled	replied	correct	difficulty	correlation
Q031	452	428	24	13	0.5417	0.6115
Q041	450	409	41	18	0.4390	0.3476
Q025	453	406	47	30	0.6383	0.4085
Q037	452	405	47	7	0.1489	0.2992
Q043	450	393	57	9	0.1579	0.4128
Q030	404	393	11	11	0.2075	0.5183
Q033	439	370	69	4	0.0580	0.2030

title	presented	cancelled	replied	correct	difficulty	correlation
Q024	454	369	85	22	0.2588	0.2919
Q009	434	350	84	64	0.7619	0.1178

Negative Discrimination Index

The discrimination index, also known as the item discrimination, measures the ability of an item to differentiate between high-scoring and low-scoring individuals on a test.

A negative discrimination index for a test item indicates that individuals who scored higher on the overall test performed worse on that particular item compared to individuals who scored lower on the overall test. In other words, individuals who are more knowledgeable or proficient in the construct being measured by the test are more likely to answer the item incorrectly.

A negative discrimination index suggests that the item is "reverse-scored" or "keyed negatively" compared to the other items in the test. It means that the item is counterintuitive or confusing to test takers, as higher-scoring individuals are more likely to select incorrect responses, while lower-scoring individuals are more likely to select correct responses.

In practical terms, a negative discrimination index indicates that the item may be problematic and should be carefully reviewed. It may suggest the need to revise the item or consider removing it from the test if it is not effectively measuring the construct of interest. Negative discrimination can adversely affect the reliability and validity of a test, as it undermines the test's ability to accurately rank individuals according to their level of the measured trait or construct.

The following **7 (out of 50)** items have a negative discrimination index, this represents **14.0%** of all the questions:

title	difficulty	discrimination	correlation
Q047	0.7176	-0.0397	0.1827
Q028	0.9236	-0.0199	0.1430
Q036	0.6105	-0.0199	0.3200
Q044	0.1716	-0.0199	0.0863
Q050	0.1775	-0.0132	0.1334
Q041	0.4390	-0.0066	0.3476
Q005	0.1422	-0.0066	0.1231

Low Correlation Index

The following questions may need to be checked as they have a low correlation index. A low point biserial correlation indicates a weak relationship between the item response and the total test score.

Specifically, a low point biserial correlation suggests that the item is not effectively discriminating between examinees who perform well on the test and those who perform poorly. It indicates that the item is not differentiating between individuals with higher and lower levels of the latent trait or construct being measured by the test.

In practical terms, a low point biserial correlation implies that the item may not be a good indicator of

the test takers' overall ability or proficiency in the tested domain. It may suggest that the item needs to be reviewed or revised to improve its ability to discriminate between individuals with different levels of the construct..

The following **11 (out of 50)** items have a low correlation index, this represents **22.0%** of all the questions:

title	difficulty	discrimination	correlation
Q044	0.1716	-0.0199	0.0863
Q009	0.7619	0.0596	0.1178
Q003	0.9787	0.1325	0.1224
Q005	0.1422	-0.0066	0.1231
Q001	0.9659	0.1523	0.1329
Q050	0.1775	-0.0132	0.1334
Q028	0.9236	-0.0199	0.1430
Q034	0.8229	0.0066	0.1488
Q019	0.3279	0.0066	0.1696
Q047	0.7176	-0.0397	0.1827
Q046	0.1671	0.1060	0.1858

Items overview

Difficulty:	Difficult	Intermediate	Easy	Discrimination:	Review!	Low	Moderate	High	Very high
Correlation:	Review!	None	Low	Moderate	Strong	Very strong			

title	presented	cancelled	replied	correct	empty	difficulty	discrimination	correlation
Q001	448	38	410	396	0	0.9659	0.1523	0.1329
Q002	443	65	378	265	0	0.7011	0.1987	0.3361
Q003	454	31	423	414	0	0.9787	0.1325	0.1224
Q004	442	90	352	312	0	0.8864	0.2318	0.2116
Q005	456	231	225	32	0	0.1422	-0.0066	0.1231
Q006	464	168	296	195	0	0.6588	0.1854	0.3409
Q007	444	218	226	186	0	0.8230	0.1788	0.2912
Q008	458	235	223	180	0	0.8072	0.2318	0.3247
Q009	434	350	84	64	0	0.7619	0.0596	0.1178
Q010	455	100	355	316	0	0.8901	0.2185	0.3129
Q011	351	109	242	242	0	0.7160	0.2914	0.3301
Q012	324	98	226	226	0	0.6589	0.2384	0.2790
Q013	360	137	223	223	0	0.7384	0.3974	0.4053
Q014	348	151	197	197	0	0.6459	0.2781	0.3542
Q015	380	77	303	303	0	0.8102	0.3510	0.3851
Q016	441	231	210	181	0	0.8619	0.0728	0.2577
Q017	460	320	140	113	0	0.8071	0.1457	0.2298
Q018	433	212	221	143	0	0.6471	0.0397	0.2009
Q019	423	240	183	60	0	0.3279	0.0066	0.1696
Q020	444	159	285	198	0	0.6947	0.2384	0.2361
Q021	457	220	237	119	0	0.5021	0.2450	0.4651
Q022	440	214	226	189	0	0.8363	0.2583	0.2298
Q023	437	211	226	196	0	0.8673	0.2848	0.2942

title	presented	cancelled	replied	correct	empty	difficulty	discrimination	correlation
Q024	454	369	85	22	0	0.2588	0.0265	0.2919
Q025	453	406	47	30	0	0.6383	0.0199	0.4085
Q026	454	278	176	73	0	0.4148	0.0993	0.2999
Q027	445	287	158	136	0	0.8608	0.0993	0.2889
Q028	455	154	301	278	0	0.9236	-0.0199	0.1430
Q029	435	222	213	128	0	0.6009	0.1921	0.4124
Q030	404	393	11	11	0	0.2075	0.0265	0.5183
Q031	452	428	24	13	0	0.5417	0.0464	0.6115
Q032	460	299	161	73	0	0.4534	0.0265	0.3145
Q033	439	370	69	4	0	0.0580	0.0000	0.2030
Q034	451	276	175	144	0	0.8229	0.0066	0.1488
Q035	440	153	287	169	0	0.5889	0.1192	0.2813
Q036	450	355	95	58	0	0.6105	-0.0199	0.3200
Q037	452	405	47	7	0	0.1489	0.0066	0.2992
Q038	438	202	236	57	0	0.2415	0.1325	0.3062
Q039	452	88	364	331	0	0.9093	0.1523	0.2791
Q040	451	188	263	204	0	0.7757	0.1060	0.2683
Q041	450	409	41	18	0	0.4390	-0.0066	0.3476
Q042	453	115	338	150	0	0.4438	0.1788	0.2754
Q043	450	393	57	9	0	0.1579	0.0265	0.4128
Q044	443	175	268	46	0	0.1716	-0.0199	0.0863
Q045	442	184	258	137	0	0.5310	0.0530	0.3004
Q046	449	60	389	65	0	0.1671	0.1060	0.1858
Q047	447	316	131	94	0	0.7176	-0.0397	0.1827
Q048	445	53	392	328	0	0.8367	0.2715	0.3763
Q049	442	274	168	106	0	0.6310	0.1921	0.3167
Q050	445	276	165	30	4	0.1775	-0.0132	0.1334

Items and Outcomes (detailed)

This section presents all the items and outcomes of the examination in detail.
Some values are colour coded for clarity. The colour code is as follows:

Difficulty:

Difficult	Intermediate	Easy
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Discrimination:

Review!	Low	Moderate	High	Very high
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Correlation:

Review!	None	Low	Moderate	Strong	Very strong
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Question - Q001

presented	cancelled	replied	correct	empty
448	38 (8.48%)	410 (91.52%)	396 (88.39%)	0
difficulty		discrimination		correlation
0.9659 (Easy)		0.1523 (Low)		0.1329 (Low)
answer	correct	ticked	discrimination	
A	*	396 (88.39%)	0.1523 (Low)	
B		5 (1.12%)	-	
C		3 (0.67%)	-	
D		6 (1.34%)	-	

Question - Q002

presented	cancelled	replied	correct	empty
443	65 (14.67%)	378 (85.33%)	265 (59.82%)	0
difficulty		discrimination		correlation
0.7011 (Easy)		0.1987 (Moderate)		0.3361 (Strong)
answer	correct	ticked	discrimination	
A		13 (2.93%)	-	
B		16 (3.61%)	-	
C		84 (18.96%)	-	
D	*	265 (59.82%)	0.1987 (Moderate)	

Question - Q003

presented	cancelled	replied	correct	empty
454	31 (6.83%)	423 (93.17%)	414 (91.19%)	0
difficulty		discrimination		correlation
0.9787 (Easy)		0.1325 (Low)		0.1224 (Low)
answer	correct	ticked	discrimination	
A		2 (0.44%)	-	
B		3 (0.66%)	-	
C	*	414 (91.19%)	0.1325 (Low)	
D		4 (0.88%)	-	

Question - Q004

presented	cancelled	replied	correct	empty
442	90 (20.36%)	352 (79.64%)	312 (70.59%)	0
difficulty		discrimination		correlation
0.8864 (Easy)		0.2318 (Moderate)		0.2116 (Moderate)
answer	correct	ticked	discrimination	
A	*	312 (70.59%)	0.2318 (Moderate)	
B		1 (0.23%)	-	
C		1 (0.23%)	-	
D		38 (8.6%)	-	

Question - Q005

presented	cancelled	replied	correct	empty
456	231 (50.66%)	225 (49.34%)	32 (7.02%)	0
difficulty		discrimination		correlation
0.1422 (Difficult)		-0.0066 (Review!)		0.1231 (Low)
answer	correct	ticked	discrimination	
A		36 (7.89%)	-	
B		77 (16.89%)	-	
C		80 (17.54%)	-	
D	*	32 (7.02%)	-0.0066 (Review!)	

Question - Q006

presented	cancelled	replied	correct	empty
464	168 (36.21%)	296 (63.79%)	195 (42.03%)	0
difficulty		discrimination		correlation
0.6588 (Easy)		0.1854 (Moderate)		0.3409 (Strong)
answer	correct	ticked	discrimination	
A		90 (19.4%)	-	
B	*	195 (42.03%)	0.1854 (Moderate)	
C		6 (1.29%)	-	
D		5 (1.08%)	-	

Question - Q007

presented	cancelled	replied	correct	empty
444	218 (49.1%)	226 (50.9%)	186 (41.89%)	0
difficulty		discrimination		correlation
0.823 (Easy)		0.1788 (Moderate)		0.2912 (Moderate)
answer	correct	ticked	discrimination	
A		17 (3.83%)	-	
B		9 (2.03%)	-	
C	*	186 (41.89%)	0.1788 (Moderate)	
D		14 (3.15%)	-	

Question - Q008

presented	cancelled	replied	correct	empty
458	235 (51.31%)	223 (48.69%)	180 (39.3%)	0
difficulty		discrimination		correlation
0.8072 (Easy)		0.2318 (Moderate)		0.3247 (Strong)
answer	correct	ticked	discrimination	
A	*	180 (39.3%)	0.2318 (Moderate)	
B		23 (5.02%)	-	
C		5 (1.09%)	-	
D		15 (3.28%)	-	

Question - Q009

presented	cancelled	replied	correct	empty
434	350 (80.65%)	84 (19.35%)	64 (14.75%)	0
difficulty		discrimination		correlation
0.7619 (Easy)		0.0596 (Low)		0.1178 (Low)
answer	correct	ticked	discrimination	
A		3 (0.69%)	-	
B	*	64 (14.75%)	0.0596 (Low)	
C		10 (2.3%)	-	
D		7 (1.61%)	-	

Question - Q010

presented	cancelled	replied	correct	empty
455	100 (21.98%)	355 (78.02%)	316 (69.45%)	0
difficulty		discrimination		correlation
0.8901 (Easy)		0.2185 (Moderate)		0.3129 (Strong)
answer	correct	ticked	discrimination	
A		23 (5.05%)	-	
B		13 (2.86%)	-	
C		3 (0.66%)	-	
D	*	316 (69.45%)	0.2185 (Moderate)	

Question - Q011

presented	cancelled	replied	correct	empty
351	109 (31.05%)	242 (68.95%)	242 (68.95%)	0
difficulty		discrimination		correlation
0.716 (Easy)		0.2914 (Moderate)		0.3301 (Strong)
answer	correct	ticked	discrimination	
A		76 (21.65%)	-	
B		19 (5.41%)	-	
C	*	287 (81.77%)	0.1258 (Low)	
D	*	294 (83.76%)	0.2517 (Moderate)	

Question - Q012

presented	cancelled	replied	correct	empty
324	98 (30.25%)	226 (69.75%)	226 (69.75%)	0
difficulty		discrimination		correlation
0.6589 (Easy)		0.2384 (Moderate)		0.279 (Moderate)
answer	correct	ticked	discrimination	
A	*	336 (103.7%)	0.0927 (Low)	
B		107 (33.02%)	-	
C	*	234 (72.22%)	0.2185 (Moderate)	
D		7 (2.16%)	-	

Question - Q013

presented	cancelled	replied	correct	empty
360	137 (38.06%)	223 (61.94%)	223 (61.94%)	0
difficulty		discrimination		correlation
0.7384 (Easy)		0.3974 (High)		0.4053 (Strong)
answer	correct	ticked	discrimination	
A	*	247 (68.61%)	0.3311 (High)	
B		57 (15.83%)	-	
C		21 (5.83%)	-	
D	*	279 (77.5%)	0.2318 (Moderate)	

Question - Q014

presented	cancelled	replied	correct	empty
348	151 (43.39%)	197 (56.61%)	197 (56.61%)	0
difficulty		discrimination		correlation
0.6459 (Easy)		0.2781 (Moderate)		0.3542 (Strong)
answer	correct	ticked	discrimination	
A		68 (19.54%)	-	
B	*	249 (71.55%)	0.1854 (Moderate)	
C		46 (13.22%)	-	
D	*	246 (70.69%)	0.1788 (Moderate)	

Question - Q015

presented	cancelled	replied	correct	empty
380	77 (20.26%)	303 (79.74%)	303 (79.74%)	0
difficulty		discrimination		correlation
0.8102 (Easy)		0.351 (High)		0.3851 (Strong)
answer	correct	ticked	discrimination	
A	*	340 (89.47%)	0.2781 (Moderate)	
B	*	337 (88.68%)	0.2119 (Moderate)	
C		31 (8.16%)	-	
D		38 (10.0%)	-	

Question - Q016

presented	cancelled	replied	correct	empty
441	231 (52.38%)	210 (47.62%)	181 (41.04%)	0
difficulty		discrimination		correlation
0.8619 (Easy)		0.0728 (Low)		0.2577 (Moderate)
answer	correct	ticked	discrimination	
A		7 (1.59%)	-	
B		10 (2.27%)	-	
C	*	181 (41.04%)	0.0728 (Low)	
D		12 (2.72%)	-	

Question - Q017

presented	cancelled	replied	correct	empty
460	320 (69.57%)	140 (30.43%)	113 (24.57%)	0
difficulty		discrimination		correlation
0.8071 (Easy)		0.1457 (Low)		0.2298 (Moderate)
answer	correct	ticked	discrimination	
A		2 (0.43%)	-	
B		20 (4.35%)	-	
C		5 (1.09%)	-	
D	*	113 (24.57%)	0.1457 (Low)	

Question - Q018

presented	cancelled	replied	correct	empty
433	212 (48.96%)	221 (51.04%)	143 (33.03%)	0
difficulty		discrimination		correlation
0.6471 (Easy)		0.0397 (Low)		0.2009 (Moderate)
answer	correct	ticked	discrimination	
A		69 (15.94%)	-	
B	*	80 (18.48%)	0.0 (Low)	
C		9 (2.08%)	-	
D	*	63 (14.55%)	0.0397 (Low)	

Question - Q019

presented	cancelled	replied	correct	empty
423	240 (56.74%)	183 (43.26%)	60 (14.18%)	0
difficulty		discrimination		correlation
0.3279 (Difficult)		0.0066 (Low)		0.1696 (Low)
answer	correct	ticked	discrimination	
A		18 (4.26%)	-	
B		9 (2.13%)	-	
C	*	60 (14.18%)	0.0066 (Low)	
D		96 (22.7%)	-	

Question - Q020

presented	cancelled	replied	correct	empty
444	159 (35.81%)	285 (64.19%)	198 (44.59%)	0
difficulty		discrimination		correlation
0.6947 (Easy)		0.2384 (Moderate)		0.2361 (Moderate)
answer	correct	ticked	discrimination	
A		14 (3.15%)	-	
B	*	198 (44.59%)	0.2384 (Moderate)	
C		9 (2.03%)	-	
D		64 (14.41%)	-	

Question - Q021

presented	cancelled	replied	correct	empty
457	220 (48.14%)	237 (51.86%)	119 (26.04%)	0
difficulty		discrimination		correlation
0.5021 (Intermediate)		0.245 (Moderate)		0.4651 (Very strong)
answer	correct	ticked	discrimination	
A	*	119 (26.04%)	0.245 (Moderate)	
B		35 (7.66%)	-	
C		16 (3.5%)	-	
D		67 (14.66%)	-	

Question - Q022

presented	cancelled	replied	correct	empty
440	214 (48.64%)	226 (51.36%)	189 (42.95%)	0
difficulty		discrimination		correlation
0.8363 (Easy)		0.2583 (Moderate)		0.2298 (Moderate)
answer	correct	ticked	discrimination	
A		17 (3.86%)	-	
B		13 (2.95%)	-	
C		7 (1.59%)	-	
D	*	189 (42.95%)	0.2583 (Moderate)	

Question - Q023

presented	cancelled	replied	correct	empty
437	211 (48.28%)	226 (51.72%)	196 (44.85%)	0
difficulty		discrimination		correlation
0.8673 (Easy)		0.2848 (Moderate)		0.2942 (Moderate)
answer	correct	ticked	discrimination	
A		13 (2.97%)	-	
B		7 (1.6%)	-	
C	*	196 (44.85%)	0.2848 (Moderate)	
D		10 (2.29%)	-	

Question - Q024

presented	cancelled	replied	correct	empty
454	369 (81.28%)	85 (18.72%)	22 (4.85%)	0
difficulty		discrimination		correlation
0.2588 (Difficult)		0.0265 (Low)		0.2919 (Moderate)
answer	correct	ticked	discrimination	
A		15 (3.3%)	-	
B	*	22 (4.85%)	0.0265 (Low)	
C		32 (7.05%)	-	
D		16 (3.52%)	-	

Question - Q025

presented	cancelled	replied	correct	empty
453	406 (89.62%)	47 (10.38%)	30 (6.62%)	0
difficulty		discrimination		correlation
0.6383 (Easy)		0.0199 (Low)		0.4085 (Strong)
answer	correct	ticked	discrimination	
A	*	30 (6.62%)	0.0199 (Low)	
B		7 (1.55%)	-	
C		4 (0.88%)	-	
D		6 (1.32%)	-	

Question - Q026

presented	cancelled	replied	correct	empty
454	278 (61.23%)	176 (38.77%)	73 (16.08%)	0
difficulty		discrimination		correlation
0.4148 (Intermediate)		0.0993 (Low)		0.2999 (Moderate)
answer	correct	ticked	discrimination	
A	*	73 (16.08%)	0.0993 (Low)	
B		28 (6.17%)	-	
C		0 (0.0%)	-	
D		75 (16.52%)	-	

Question - Q027

presented	cancelled	replied	correct	empty
445	287 (64.49%)	158 (35.51%)	136 (30.56%)	0
difficulty		discrimination		correlation
0.8608 (Easy)		0.0993 (Low)		0.2889 (Moderate)
answer	correct	ticked	discrimination	
A	*	136 (30.56%)	0.0993 (Low)	
B		4 (0.9%)	-	
C		2 (0.45%)	-	
D		16 (3.6%)	-	

Question - Q028

presented	cancelled	replied	correct	empty
455	154 (33.85%)	301 (66.15%)	278 (61.1%)	0
difficulty		discrimination		correlation
0.9236 (Easy)		-0.0199 (Review!)		0.143 (Low)
answer	correct	ticked	discrimination	
A		10 (2.2%)	-	
B		4 (0.88%)	-	
C		8 (1.76%)	-	
D	*	278 (61.1%)	-0.0199 (Review!)	

Question - Q029

presented	cancelled	replied	correct	empty
435	222 (51.03%)	213 (48.97%)	128 (29.43%)	0
difficulty		discrimination		correlation
0.6009 (Easy)		0.1921 (Moderate)		0.4124 (Strong)
answer	correct	ticked	discrimination	
A		8 (1.84%)	-	
B		8 (1.84%)	-	
C	*	128 (29.43%)	0.1921 (Moderate)	
D		69 (15.86%)	-	

Question - Q030

presented	cancelled	replied	correct	empty
404	393 (97.28%)	11 (2.72%)	11 (2.72%)	0
difficulty		discrimination		correlation
0.2075 (Difficult)		0.0265 (Low)		0.5183 (Very strong)
answer	correct	ticked	discrimination	
A		7 (1.73%)	-	
B		37 (9.16%)	-	
C	*	40 (9.9%)	-0.0397 (Review!)	
D	*	22 (5.45%)	0.0132 (Low)	

Question - Q031

presented	cancelled	replied	correct	empty
452	428 (94.69%)	24 (5.31%)	13 (2.88%)	0
difficulty		discrimination		correlation
0.5417 (Intermediate)		0.0464 (Low)		0.6115 (Very strong)
answer	correct	ticked	discrimination	
A		8 (1.77%)	-	
B		0 (0.0%)	-	
C	*	13 (2.88%)	0.0464 (Low)	
D		3 (0.66%)	-	

Question - Q032

presented	cancelled	replied	correct	empty
460	299 (65.0%)	161 (35.0%)	73 (15.87%)	0
difficulty		discrimination		correlation
0.4534 (Intermediate)		0.0265 (Low)		0.3145 (Strong)
answer	correct	ticked	discrimination	
A		8 (1.74%)	-	
B	*	73 (15.87%)	0.0265 (Low)	
C		8 (1.74%)	-	
D		72 (15.65%)	-	

Question - Q033

presented	cancelled	replied	correct	empty
439	370 (84.28%)	69 (15.72%)	4 (0.91%)	0
difficulty		discrimination		correlation
0.058 (Difficult)		0.0 (Low)		0.203 (Moderate)
answer	correct	ticked	discrimination	
A	*	4 (0.91%)	0.0 (Low)	
B		24 (5.47%)	-	
C		12 (2.73%)	-	
D		29 (6.61%)	-	

Question - Q034

presented	cancelled	replied	correct	empty
451	276 (61.2%)	175 (38.8%)	144 (31.93%)	0
difficulty		discrimination		correlation
0.8229 (Easy)		0.0066 (Low)		0.1488 (Low)
answer	correct	ticked	discrimination	
A		2 (0.44%)	-	
B	*	144 (31.93%)	0.0066 (Low)	
C		4 (0.89%)	-	
D		25 (5.54%)	-	

Question - Q035

presented	cancelled	replied	correct	empty
440	153 (34.77%)	287 (65.23%)	169 (38.41%)	0
difficulty		discrimination		correlation
0.5889 (Intermediate)		0.1192 (Low)		0.2813 (Moderate)
answer	correct	ticked	discrimination	
A		92 (20.91%)	-	
B	*	169 (38.41%)	0.1192 (Low)	
C		11 (2.5%)	-	
D		15 (3.41%)	-	

Question - Q036

presented	cancelled	replied	correct	empty
450	355 (78.89%)	95 (21.11%)	58 (12.89%)	0
difficulty		discrimination		correlation
0.6105 (Easy)		-0.0199 (Review!)		0.32 (Strong)
answer	correct	ticked	discrimination	
A		31 (6.89%)	-	
B		3 (0.67%)	-	
C	*	58 (12.89%)	-0.0199 (Review!)	
D		3 (0.67%)	-	

Question - Q037

presented	cancelled	replied	correct	empty
452	405 (89.6%)	47 (10.4%)	7 (1.55%)	0
difficulty		discrimination		correlation
0.1489 (Difficult)		0.0066 (Low)		0.2992 (Moderate)
answer	correct	ticked	discrimination	
A	*	7 (1.55%)	0.0066 (Low)	
B		2 (0.44%)	-	
C		28 (6.19%)	-	
D		10 (2.21%)	-	

Question - Q038

presented	cancelled	replied	correct	empty
438	202 (46.12%)	236 (53.88%)	57 (13.01%)	0
difficulty		discrimination		correlation
0.2415 (Difficult)		0.1325 (Low)		0.3062 (Strong)
answer	correct	ticked	discrimination	
A	*	57 (13.01%)	0.1325 (Low)	
B		124 (28.31%)	-	
C		51 (11.64%)	-	
D		4 (0.91%)	-	

Question - Q039

presented	cancelled	replied	correct	empty
452	88 (19.47%)	364 (80.53%)	331 (73.23%)	0
difficulty		discrimination		correlation
0.9093 (Easy)		0.1523 (Low)		0.2791 (Moderate)
answer	correct	ticked	discrimination	
A		9 (1.99%)	-	
B		6 (1.33%)	-	
C		18 (3.98%)	-	
D	*	331 (73.23%)	0.1523 (Low)	

Question - Q040

presented	cancelled	replied	correct	empty
451	188 (41.69%)	263 (58.31%)	204 (45.23%)	0
difficulty		discrimination		correlation
0.7757 (Easy)		0.106 (Low)		0.2683 (Moderate)
answer	correct	ticked	discrimination	
A		3 (0.67%)	-	
B	*	204 (45.23%)	0.106 (Low)	
C		50 (11.09%)	-	
D		6 (1.33%)	-	

Question - Q041

presented	cancelled	replied	correct	empty
450	409 (90.89%)	41 (9.11%)	18 (4.0%)	0
difficulty		discrimination		correlation
0.439 (Intermediate)		-0.0066 (Review!)		0.3476 (Strong)
answer	correct	ticked	discrimination	
A		14 (3.11%)	-	
B		5 (1.11%)	-	
C	*	18 (4.0%)	-0.0066 (Review!)	
D		4 (0.89%)	-	

Question - Q042

presented	cancelled	replied	correct	empty
453	115 (25.39%)	338 (74.61%)	150 (33.11%)	0
difficulty		discrimination		correlation
0.4438 (Intermediate)		0.1788 (Moderate)		0.2754 (Moderate)
answer	correct	ticked	discrimination	
A		78 (17.22%)	-	
B	*	150 (33.11%)	0.1788 (Moderate)	
C		103 (22.74%)	-	
D		7 (1.55%)	-	

Question - Q043

presented	cancelled	replied	correct	empty
450	393 (87.33%)	57 (12.67%)	9 (2.0%)	0
difficulty		discrimination		correlation
0.1579 (Difficult)		0.0265 (Low)		0.4128 (Strong)
answer	correct	ticked	discrimination	
A	*	9 (2.0%)	0.0265 (Low)	
B		17 (3.78%)	-	
C		12 (2.67%)	-	
D		19 (4.22%)	-	

Question - Q044

presented	cancelled	replied	correct	empty
443	175 (39.5%)	268 (60.5%)	46 (10.38%)	0
difficulty		discrimination		correlation
0.1716 (Difficult)		-0.0199 (Review!)		0.0863 (None)
answer	correct	ticked	discrimination	
A		93 (20.99%)	-	
B		14 (3.16%)	-	
C		115 (25.96%)	-	
D	*	46 (10.38%)	-0.0199 (Review!)	

Question - Q045

presented	cancelled	replied	correct	empty
442	184 (41.63%)	258 (58.37%)	137 (31.0%)	0
difficulty		discrimination		correlation
0.531 (Intermediate)		0.053 (Low)		0.3004 (Strong)
answer	correct	ticked	discrimination	
A	*	137 (31.0%)	0.053 (Low)	
B		71 (16.06%)	-	
C		2 (0.45%)	-	
D		48 (10.86%)	-	

Question - Q046

presented	cancelled	replied	correct	empty
449	60 (13.36%)	389 (86.64%)	65 (14.48%)	0
difficulty		discrimination		correlation
0.1671 (Difficult)		0.106 (Low)		0.1858 (Low)
answer	correct	ticked	discrimination	
A		1 (0.22%)	-	
B		4 (0.89%)	-	
C	*	65 (14.48%)	0.106 (Low)	
D		319 (71.05%)	-	

Question - Q047

presented	cancelled	replied	correct	empty
447	316 (70.69%)	131 (29.31%)	94 (21.03%)	0
difficulty		discrimination		correlation
0.7176 (Easy)		-0.0397 (Review!)		0.1827 (Low)
answer	correct	ticked	discrimination	
A		7 (1.57%)	-	
B	*	94 (21.03%)	-0.0397 (Review!)	
C		18 (4.03%)	-	
D		12 (2.68%)	-	

Question - Q048

presented	cancelled	replied	correct	empty
445	53 (11.91%)	392 (88.09%)	328 (73.71%)	0
difficulty		discrimination		correlation
0.8367 (Easy)		0.2715 (Moderate)		0.3763 (Strong)
answer	correct	ticked	discrimination	
A		62 (13.93%)	-	
B	*	328 (73.71%)	0.2715 (Moderate)	
C		2 (0.45%)	-	
D		0 (0.0%)	-	

Question - Q049

presented	cancelled	replied	correct	empty
442	274 (61.99%)	168 (38.01%)	106 (23.98%)	0
difficulty		discrimination		correlation
0.631 (Easy)		0.1921 (Moderate)		0.3167 (Strong)
answer	correct	ticked	discrimination	
A		23 (5.2%)	-	
B		16 (3.62%)	-	
C	*	106 (23.98%)	0.1921 (Moderate)	
D		23 (5.2%)	-	

Question - Q050

presented	cancelled	replied	correct	empty
445	276 (62.02%)	165 (37.08%)	30 (6.74%)	4 (0.9%)
difficulty		discrimination		correlation
0.1775 (Difficult)		-0.0132 (Review!)		0.1334 (Low)
answer	correct	ticked	discrimination	
A	*	30 (6.74%)	-0.0132 (Review!)	
B		19 (4.27%)	-	
C		5 (1.12%)	-	
D		111 (24.94%)	-	

Definitions

Standard Deviation

Standard deviation is a statistical measure that describes the amount of variability or dispersion in a set of data. It is a measure of how spread out the data is from the mean or average value. A higher standard deviation means that the data points are more spread out and a lower standard deviation indicates that the data points are closer to the mean.

In the context of Classical Test Theory, standard deviation is used to measure the variability of scores on a test. It helps to evaluate the consistency and quality of a test by showing the spread of scores around the mean. If there is a high standard deviation, it indicates that the test has a wide range of scores and may have items that are too difficult or too easy for the test takers. On the other hand, a low standard deviation suggests that the test has a narrow range of scores and may not be sensitive enough to distinguish between high and low performing test takers.

Variance

Variance is another statistical measure of the spread or variability in a set of data. It is the average of the squared differences from the mean or average value. In other words, it quantifies how much the data points differ from their mean value.

Variance is used to evaluate the reliability of a test score. It measures the extent to which the scores obtained by different test takers vary from each other, or from their mean score. A higher variance indicates that the test scores are more spread out and less consistent, while a lower variance suggests that the test takers' scores are more consistent and closer to each other.

Variance is an important statistical concept in understanding the quality of a test score and diagnosing measurement errors. A reliable test should have a low variance, indicating that the test scores are less likely to be affected by random errors or chance factors.

Skewness and kurtosis

Skewness and kurtosis are two statistical measures that describe the shape of a probability distribution or frequency distribution of a set of data.

Skewness is a measure of the asymmetry of the distribution, or how much it deviates from the normal or symmetrical distribution. If the tail of the distribution is longer on the left, it is negatively skewed, while if it is longer on the right, it is positively skewed. A perfectly symmetrical distribution has zero skewness.

Kurtosis, on the other hand, measures the peakedness of the distribution, or how much it deviates from the normal distribution in terms of the distribution's tails. A distribution with high kurtosis has more extreme values (in the tails) than a normal distribution, while a distribution with low kurtosis is less peaked and has lighter tails. A normal distribution has a kurtosis of 3, which is sometimes called

"mesokurtic."

In the context of Classical Test Theory, skewness and kurtosis are used to evaluate the normality or symmetry of score distributions. For example, if a set of scores on a test has a high positive skewness, this may indicate that the test items were too easy and many test takers scored high, or that there might be some measurement error in the test. Conversely, if the scores have a high negative skewness, it suggests that the test items were too difficult or that there might be systematic negative biases in the test results. A normal score distribution is ideal for most applications, as it indicates that the test measures the intended construct effectively and there are no biases or measurement errors.

Kurtosis is also relevant for test score distributions, as high kurtosis or high peakedness can indicate that the test may lack discriminating power and have ceiling or floor effects. Ceiling effects occur when many test takers obtain the highest possible score, making it difficult to differentiate between high-achieving test takers. Floor effects occur when many test takers obtain the lowest possible score, making it difficult to differentiate between low-achieving test takers. Thus, evaluating the skewness and kurtosis of test score distributions can help diagnose measurement issues and improve the quality of the test.

Discrimination

'Discrimination' refers to the ability of a test item to differentiate between high performing and low performing test takers. Discrimination is a measure of the extent to which an item measures the intended construct effectively.

Typically, items with a high level of discrimination are those that are answered correctly by high-performing test takers but answered incorrectly by low-performing test takers. If an item is answered correctly by all test takers or answered incorrectly by all, it indicates a lack of discrimination. A well-designed test should have a balance of easy, moderate, and difficult items that can differentiate between test takers with different levels of ability and accurately measure the intended construct.

Discrimination is evaluated using the point-biserial correlation coefficient, which measures the correlation between the scores of an item and the total score on the test. An item with a high point-biserial correlation is considered to be a good discriminator.

Correlation

Correlation is a statistical measure that describes the degree of association or relationship between two variables. It measures the direction and strength of the linear relationship between the variables. A correlation coefficient is a numerical value between -1 and +1 that indicates the degree of correlation between the variables.

In positive correlation, both variables move in the same direction (either both increase or both decrease). In negative correlation, the variables move in opposite directions (one increases while the other decreases). A correlation coefficient of 0 indicates that there is no linear relationship between the two variables.

Test Reliability

Test reliability is a measure of the consistency or stability of a test over time. If a test is reliable, it should give consistent results when administered to the same group of individuals at different times or when different raters score the test independently. There are several methods for evaluating test reliability, and one of the most widely used is Cronbach's alpha coefficient. Cronbach's alpha coefficient is a statistical measure of the internal consistency of a test. It measures the extent to which items in a test that are intended to measure the same construct are similar in nature or correlated with each other. Alpha coefficient ranges from 0 to 1, with higher values indicating better internal consistency. A Cronbach's alpha coefficient of 0.70 or higher is generally considered to be acceptable for most purposes. The alpha coefficient is calculated by analyzing the correlations between all possible pairs of items in a test. If the items are highly correlated, it suggests that they are measuring the same construct, and the test has strong internal consistency. If the items are not highly correlated, it indicates that the test has low internal consistency and may need to be revised or improved.