



General Report

ASSESSMENT OF STUDENTS PERFORMANCE

ANNUAL EXAMINATION 2022 GRADE 9

**Federal Board of Intermediate & Secondary
Education, Islamabad**

Abbreviations

AFP	Assessment Policy Framework
AMD	Absolute Marks Difference
CL	Cognitive Level
CRQ	Constructive Response Question
CTT	Classical Test Theory
ERQ	Extended Response Question
FBISE	Federal Board of Intermediate and Secondary Education
GoP	Government of Pakistan
ICT	Islamabad Capital Territory
IRT	Item Response Theory
MCQ	Multiple Choice Question
MoFE&PT	Ministry of Federal Education and Professional Training
MoU	Memorandum of Understanding
PEC	Punjab Examination Commission
QIB	Question Item Bank
RFP	Request for Proposal
SBA	School Based Assessment
SLO	Student's Learning Outcome
ToS	Table of Specification

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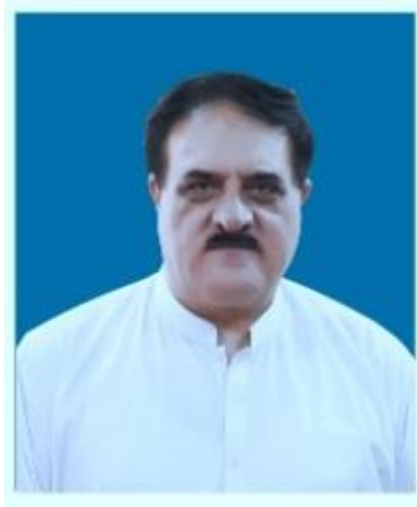
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Message from the Chairman FBISE



As Chairman of the Federal Board of Intermediate and Secondary Education (FBISE), I am privileged to steer an institution that is fundamentally impacting the educational landscape. We at FBISE, are tasked with creating an environment of academic excellence, supported by a curriculum that integrates modern pedagogical techniques and instils a sense of national responsibility in our students. Our role in conducting comprehensive examinations at the secondary and higher secondary levels ensures a system that champions fairness and objectivity.

Our initiatives extend to conducting pertinent research to stay abreast of current educational trends and challenges, enabling us to adapt and improve our teaching methodologies. Beyond the conventional roles of an educational board, FBISE offers guidance and support to students, teachers, and other stakeholders. We provide a range of services to our affiliated institutions, such as student enrolment, provision of teaching resources, and teacher training programs. I extend my heartfelt gratitude to all our stakeholders for their continued trust and support. While we acknowledge the significant challenges before us, together, we are committed to striving for academic excellence and nurturing a generation ready and able to shape the future.

(Qaisar Alam)
Chairman, FBISE

Chapter 1 Executive Summary

The main objective of the task was to assess students' performance through statistical as well as psychometric analysis of examination data of grade 9 of the year 2022. It was further aimed to communicate all stakeholders about gender wise, ability wise, location wise etc. students' performance.

The item-wise students' responses were analysed through Item Response Theory based software named as Xcalibre. This software rates each item on the bases of quality of item rather than number of correct responses having equal weightage.

The item-wise students' responses were analysed through statistics by using SPSS and Microsoft Excel. This analysis was based on number of students' correct response and each correct response carries equal weightage.

Boys from Cadet Colleges outperformed than both boys and girls from all other directorates. The competition of boys and girls from all directorates, except Cadet Colleges, is mixed.

English Findings:

In English, girls outperformed boys in all directorates except K.R.L E/D. Female students had a better overall ability score than male students in local versions and equal scores in hard versions, with both genders having an average ability score of around 50. The highest ability score was found in students from Garrison and AJK, while the lowest was found in students from FDE and Federal provinces. South Waziristan district had the highest ability score among all directorates, while Tharparkar district had the lowest. Almost resembling findings are in other subjects, however detailed remarks are given with each table.

Mathematics Findings:

The analysis of mathematics (Local & Hard) suggests that female students have higher ability scores than male students on both local and hard versions of the test, with an average score of about 50%. It also observed that AJK has the best provincial score (55.5%), followed by Punjab (54.9%) and Sindh (54%). The lowest provincial score belongs to overseas students (47.7%). It is further observed that Cadet Colleges Directorate has the best directorate score (58.92%), followed by Federal Directorate (57.67%) and Gilgit Baltistan Directorate (56.77%). The lowest directorate score belongs to Chilas Directorate (43.62%). Finally, Dera

Bugthi district has the best district score (65.17%), followed by Islamabad Capital Territory district (63%) and Khushab district (62%). The lowest district score belongs to Khairpur district (35.67%).

Biology Findings:

The results for Biology also show similar results on both local and hard version of papers. The major findings are as follows:

- Female students performed better than male students.
- Students from AJK have the highest ability scores, while those from Sindh have the lowest.
- Students from the Garrison directorate have the best performance, while those from Chilas directorate have the worst. Finally, the results suggest that except for the Garrison directorate, female students performed better than male students.

Chemistry Findings:

- Overall ability score of female students is comparatively better than male students on both local and hard versions.

- The ability score of both male and female students is about 50%.
- Students of AJK (55.86%) are best and Federal (48.04%) is least among all provinces.
- The ability score of students of Garrison (58.89%) is best and FDE (42.21%) is least among all directorates.
- Above table explored that ability score of students of South Waziristan district (63.28%) is best and Larkana district (24.42%) is least among all directorates.

Physics Findings:

- Overall ability score of female students is comparatively better than male students on both local and hard versions.
- The ability score of both male and female students is about 50%.
- Ability scores of students of AJK (57.06%) is best and Federal (47.67%) is least among all provinces.
- Scores of students of Gawader district (62.72%) are best and Khairpur district (28.49%) is least among all directorates.

Chapter 2 Introduction

2.1 Background

The Federal Board of Intermediate and Secondary Education is an independent body established by the Government of Pakistan to evaluate and assess the academic progress of students. The board develops assessment materials that are used to measure students' learning outcomes and provide feedback to policymakers and other stakeholders. An important aspect of this process is the use of psychometric analysis to develop benchmarks for evaluating students' performance, which involves scaling the results.

2.2 Psychometric Analysis for Quality Assessment

Ensuring the provision of quality education to all children is crucial for a nation's success in the modern world. An effective and transparent assessment system is essential to ensure the quality of education. The Federal Board of Intermediate and Secondary Education (FBISE) in Islamabad is working tirelessly to improve the assessment system by implementing necessary reforms that will benefit the public. The key component of quality education is high-quality assessment, and the Federal Board of Examinations has taken the initiative to standardize its assessment development process. As a part of this effort, the board has outsourced the analysis of its items to understand their psychometric properties. FBISE has also started online onscreen marking and has digital data of grade 9 in subjects such as English, Mathematics, Physics, Chemistry, and Biology.

Assessments use an individual's responses to its items to make inferences about their level of attainment in a given area, typically by generating a score reflecting the level of achievement. As the quality of assessment scores, namely their reliability and validity, is primarily determined by the quality of the assessment items, it is essential to assess the properties of the items making up the assessment. Good items result in high-quality scores, while bad items result in low-quality scores. But how can we determine whether a particular item is good or bad? The process of item analysis aims to evaluate the properties of items to determine (a) which items make an acceptable contribution to the quality of the generated scores and (b) which items require revision or removal from the assessment altogether. This process ensures

the continued improvement of assessment quality by maintaining the relevance and accuracy of its items.

2.3 Objective of the Task

The main objective of the task was to assess students' performance through statistical as well as psychometric analysis of examination data of grade 9 of the year 2022. It was further aimed to communicate all stakeholders about gender wise, ability wise, location wise etc. students' performance.

2.4 Conceptual Understanding of Task

Psychometric testing is designed to gain a better understanding of an individual's cognitive capacity, the natural ability within areas, interests, and personality traits. A psychometric analysis is widely used in the realm of testing to develop benchmarks for comparison of students' performance over the years as well as different curricula through alignment of common students' learning outcomes.

2.5 Psychometric Analysis of Examination Data

The item-wise students' responses were analysed through Item Response Theory based software named as Xcalibre. This software rates each item on the bases of quality of item rather than number of correct responses having equal weightage.

2.6 Statistical Analysis of Examination Data

The item-wise students' responses were analysed through statistics by using SPSS and Microsoft Excel. This analysis was based on number of students' correct response and each correct response carries equal weightage.

Chapter 3 Performance Analysis

IRT is being used to predict students' scores based on his/her abilities or latent traits and to establish a relationship between person's item performance and the set of traits underlying item performance. IRT provides a precise estimate of students' location on the underlying distribution of ability, analogous to the standard z scale. Usually, a scale 0 to 1000 is used to report a student's ability in IRT models. In Pakistani scenario, a scale 0 to 100 is used to report students' ability score based on psychometric analysis.

3.1 Ability Scores

In IRT, each item on a test is calibrated to determine its difficulty level and how well it discriminates between students with different levels of ability. Based on a student's responses to the items on the test, a statistical model is used to estimate their ability level, which is represented as a numerical score on a continuous scale.

The ability score is typically expressed in the same units as the item difficulty parameters, which are usually expressed on a logit scale. A higher ability score indicates a higher level of proficiency or knowledge in the subject area being assessed.

The use of IRT allows for a more precise and accurate estimation of a student's ability level, as well as the difficulty level of each test item, which can be used to guide instructional decisions and evaluate the effectiveness of educational programs.

3.2 Comparison of Students Performance by Ability Scores English

Table 1 Gender Wise Comparison (English)

Type of Paper (Local/Hard)	Gender	Overall Ability Score	MCQs Ability Score	CRQs Ability Score
Hard	Female	50.08	49.23	50.93
	Male	50.16	51.52	49.47
	Total	50.12	50.48	50.13
Local	Female	51.38	50.56	51.72
	Male	48.73	50.06	48.40
	Total	50.03	50.31	50.02
Total	Female	51.17	50.34	51.59
	Male	48.99	50.33	48.60
	Total	50.04	50.34	50.04

Above table explored that overall ability score of female students is comparatively better than male students on local version and equal on hard versions. The ability score of both male and female students is about 50%.

Figure 1 Overall ability scores English

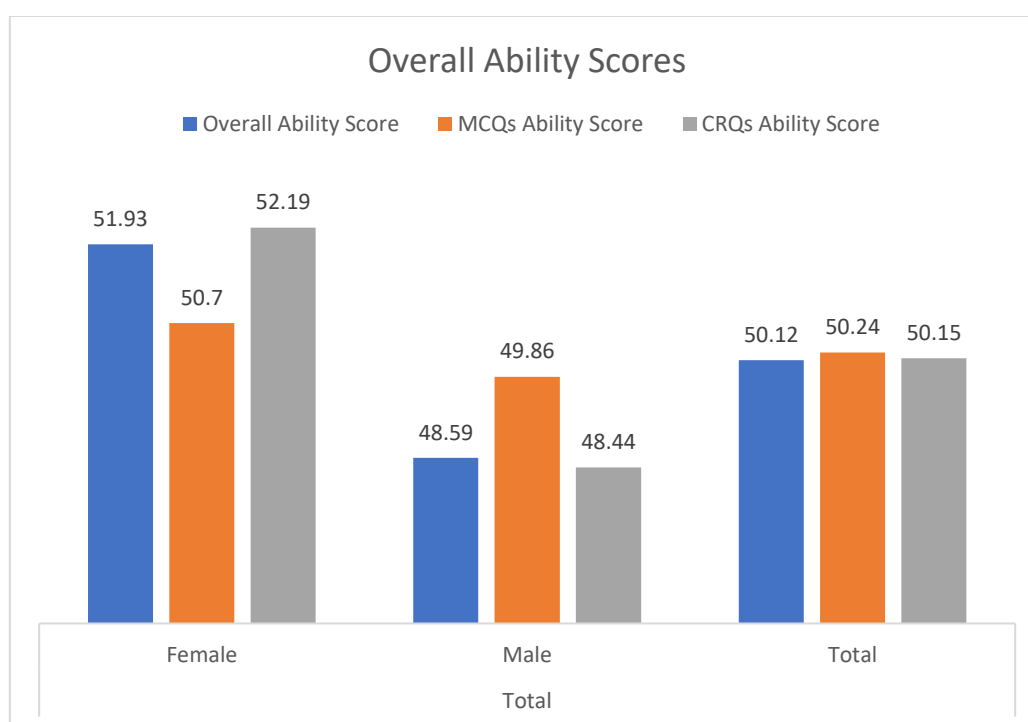


Table 2 Province Wise Comparison (English)

Province	Overall Ability Score	MCQs Ability Score	CRQs Ability Score
A.J.K.	59.20	55.35	60.41
BALUCHISTAN	50.79	52.17	50.01
FEDERAL	47.01	47.67	47.39
GILGIT-BALTISTAN	48.35	49.37	48.29
KHYBER-PUKHTUNKHWA	55.16	55.81	53.67
OVERSEAS	54.44	52.76	54.95
PUNJAB	51.59	51.27	51.64
SINDH	49.62	51.23	48.87
Total	50.04	50.34	50.04

Above table explored that ability score of students of AJK (59.20%) is best and Federal (47.01%) is least among all provinces.

Table 3 Directorate Wise Comparison (English)

Directorate	Overall Ability Score	MCQs Ability Score	CRQs Ability Score
BAHRIA FDN.E/D	55.29	53.90	55.28
CADET COLLEGES	59.65	59.55	57.46
CANTT BOARD	53.25	53.04	52.88
CHILAS DIRECTORATE	46.27	51.82	44.55
F.G.E.I (C & G)	50.04	49.85	50.29
FAUJI FDN, E/D	57.01	56.09	56.29
FDE	44.57	45.39	45.31
FRONTIER CORPS	52.91	51.92	52.79
GARRISON	61.08	59.07	60.05
GILGIT DIRECTORATE	46.99	48.97	46.61
K.R.L. E/D	56.74	54.04	57.61
O.P.F. E/D	58.79	56.78	58.47
OTHERS	56.66	55.98	56.58
OVERSEAS	55.11	53.58	55.41
P.A.E.C E/D	54.92	54.10	54.61
P.A.F E/D.PESH	56.83	55.84	56.12

PAK, ARMY E/D GHQ	58.56	57.20	57.63
PAK. NAVY E/D ISB	57.46	56.32	56.63
PRIVATE	49.30	49.73	49.42
RANGERS	57.81	57.46	56.39
SKARDU DIRECTORATE	44.69	45.70	45.41
Total	50.04	50.34	50.04

Above table explored that ability score of students of Garrison (61.08%) is best and FDE (44.57%) is least among all directorates.

Table 4 District Wise Comparison (English)

District	Overall Ability Score	MCQs Ability Score	CRQs Ability Score
ABBOTTABAD	54.61	55.14	53.28
ASTORE	46.28	48.68	45.90
ATTOCK	52.23	51.78	52.35
BADIN	53.84	50.79	55.09
BAGH	57.78	52.77	60.34
BAHAWALNAGAR	60.59	63.25	56.23
BAHAWALPUR	55.77	54.87	55.31
BANNU	54.37	56.29	52.17
BHIMBER	56.75	55.66	56.26
CHAKWAL	50.87	54.18	49.24
CHAMAN	47.51	50.58	47.06
CHINIOT	41.73	42.84	42.98
D. I. KHAN	55.58	56.43	53.96
DADU	40.93	49.41	39.29
DERA BUGTI	59.55	58.66	57.28
DERA GHAZI KHAN	57.83	58.48	55.45
DIAMIR	50.52	58.92	46.38
DUKI	51.08	48.93	52.08
FAISALABAD	40.80	44.00	41.07
GHANCHE	46.29	47.04	46.78
GHIZER	49.28	52.77	47.34
GHOTKI	45.70	46.85	45.98

GILGIT	49.78	50.25	49.67
GUJRANWALA	54.13	53.28	53.97
GUJRAT	56.10	55.72	55.01
GWADAR	50.31	53.66	49.10
HAFIZABAD	55.15	54.12	55.09
HANGU	54.32	53.64	53.85
HARIPUR	56.50	57.34	54.53
HATTIAN BALA	60.00	59.73	57.79
HUNZA	50.82	48.57	52.21
HYDERABAD	57.41	56.55	56.63
ISLAMABAD	47.06	47.72	47.43
JACOBABAD	48.94	53.89	46.78
JAMSHORO	59.80	59.69	57.95
JHANG	55.29	56.85	53.24
JHELUM	51.09	50.93	50.95
KARACHI CENTRAL	52.23	53.54	50.90
KARACHI EAST	53.97	53.49	53.66
KARACHI KEMARI	41.39	44.86	41.36
KARACHI KORANGI	46.83	48.42	46.54
KARACHI MALIR	49.69	51.18	48.92
KARACHI SOUTH	45.48	49.37	43.97
KARACHI WEST	44.98	47.01	45.14
KASHMORE	51.26	55.50	48.90
KASUR	52.49	52.85	51.73
KHAIRPUR	46.74	48.00	46.51
KHANEWAL	46.51	48.71	45.97
KHARAN	45.13	45.53	45.99
KHARMANG	40.74	42.70	41.97
KHUSHAB	44.95	47.65	44.71
KHUZDAR	53.76	48.67	56.74
KILLA SAIFULLAH	47.48	48.91	47.33
KOHAT	56.87	57.49	54.84
KOHLU	50.44	47.82	52.10
KOTLI	59.34	54.24	61.55

KURRAM	52.75	57.28	49.74
LAHORE	56.01	55.53	55.11
LARKANA	44.65	56.61	41.97
LASBELA	42.24	46.39	41.90
LORALAI	55.07	53.68	54.94
MANDI BHAUDDIN	52.46	50.86	53.03
MANSEHRA	50.45	52.29	49.48
MARDAN	54.15	54.28	53.44
MASTUNG	45.45	48.68	45.43
MATIARI	51.38	57.18	47.37
MIANWALI	54.62	54.65	53.89
MIRPUR	54.79	51.86	56.32
MIRPUR KHAS	42.08	44.21	42.22
MULTAN	53.17	52.95	52.60
MUZAFFARABAD	58.84	54.74	60.30
MUZAFFARGARH	42.73	46.53	42.35
NAGAR	46.38	46.63	47.30
NAROWAL	49.52	48.29	50.57
NASIRABAD	42.58	46.16	42.38
NAUSHAHRO FEROZE	37.25	43.98	37.06
NOWSHERA	54.09	54.82	52.65
NUSHKI	58.57	56.81	57.86
OKARA	54.27	52.96	54.48
OVERSEAS	54.54	52.86	55.04
PESHAWAR	55.83	56.17	54.53
PISHIN	49.13	47.73	49.79
POONCH	63.47	59.83	63.57
QUETTA	50.22	51.97	49.50
RAHIM YAR KHAN	56.87	56.14	56.31
RAJANPUR	49.05	47.93	50.53
RAWALPINDI	50.76	50.31	51.09
ROUNDU	42.50	44.12	43.82
S WAZIRISTAN	65.70	66.00	61.33
SARGODHA	54.57	53.12	54.75

SHAHEED BENAZIR ABAD	43.72	47.68	43.18
SHEIKHUPURA	39.09	42.19	39.77
SHIGAR	46.57	47.66	46.80
SIALKOT	53.54	53.02	53.12
SIBBI	57.75	56.34	56.57
SKARDU	49.06	48.67	49.63
SUDHNOTI	56.55	53.46	57.60
SUKKUR	52.57	51.76	53.20
SWABI	47.01	48.36	47.13
SWAT	50.79	52.72	49.44
TANDO ALLAHYAR	43.11	46.16	43.15
TANDO MUHAMMAD KHAN	42.53	53.15	39.91
THARPARKAR	33.85	40.08	34.46
THATTA	46.29	50.99	44.92
VEHARI	45.11	45.33	45.93
ZHOB	59.21	60.27	55.98
ZIARAT	59.30	58.51	57.66
Total	50.04	50.34	50.04

Above table explored that ability score of students of South Waziristan district (65.70%) is best and Tharparkar district (33.85%) is least among all directorates.

Table 5 Gender and location wise Mean Percentage performance English Local Version

Overall Mean Percentage in English Local Version		
Directorate Name	Girls	Boys
BAHRIA FDN.E/D	72.31	67.95
CADET COLLEGES	77.08	71.47
CANTT BOARD	70.39	62.97
F.G.E.I (C & G)	63.99	59.15
FAUJI FDN, E/D	73.67	70.31
FDE	55.37	50.27
FRONTIER CORPS	60.50	58.24
GARRISION	79.23	77.40
K.R.L. E/D	69.28	72.48
O.P.F. E/D	79.08	70.67

OTHERS	74.64	66.04
OVERSEAS	69.15	68.14
P.A.E.C E/D	71.33	68.23
P.A.F E/D.PESH	74.16	69.97
PAK, ARMY E/D GHQ	76.62	72.05
PAK. NAVY E/D ISB	73.71	71.61
PRIVATE	62.24	57.07
RANGERS	74.64	72.70
Total	63.46	59.73

Above table explored that except K.R.L E/D, girls from all other directorates performed better than boys.

Table 6 *Location and Directorate wise overall performance of students English Local Version*

Province/Area	Directorate name	Overall Mean Percentage	
A.J.K.	PAK, ARMY E/D GHQ	65.46	
BALUCHISTAN	CANTT BOARD	65.35	
	F.G.E.I (C & G)	57.79	
	FAUJI FDN, E/D	73.60	
	FRONTIER CORPS	59.30	
	GARRISON	71.62	
	P.A.F E/D.PESH	66.50	
	PAK, ARMY E/D GHQ	68.98	
	PRIVATE	52.79	
	FEDERAL	BAHRIA FDN.E/D	72.69
		FAUJI FDN, E/D	81.46
FDE		53.24	
O.P.F. E/D		75.10	
OTHERS		78.80	
P.A.E.C E/D		64.52	
P.A.F E/D.PESH		74.65	
PAK, ARMY E/D GHQ		74.04	
PAK. NAVY E/D ISB		72.87	
	PRIVATE	61.15	

GILGIT-BALTISTAN	PAK, ARMY E/D GHQ	71.25
	PRIVATE	46.12
KHYBER-PUKHTUNKHWA	CADET COLLEGES	71.50
	CANTT BOARD	72.92
	F.G.E.I (C & G)	62.38
	FAUJI FDN, E/D	69.44
	GARRISION	83.51
	OTHERS	62.87
	P.A.F E/D.PESH	69.36
	PAK, ARMY E/D GHQ	73.10
	PRIVATE	61.69
OVERSEAS	OVERSEAS	68.71
PUNJAB	BAHRIA FDN.E/D	69.17
	CADET COLLEGES	71.14
	CANTT BOARD	67.34
	F.G.E.I (C & G)	61.36
	FAUJI FDN, E/D	71.72
	GARRISION	77.91
	K.R.L. E/D	70.67
	OTHERS	68.86
	P.A.E.C E/D	70.93
	P.A.F E/D.PESH	71.93
	PAK, ARMY E/D GHQ	74.70
	PAK. NAVY E/D ISB	80.82
	PRIVATE	60.70
	RANGERS	74.08
SINDH	CADET COLLEGES	82.74
	CANTT BOARD	65.54
	F.G.E.I (C & G)	67.64
	P.A.F E/D.PESH	71.75
	PAK, ARMY E/D GHQ	73.14
	PAK. NAVY E/D ISB	72.36
	PRIVATE	52.20
	RANGERS	67.36

Table 7 Gender and location wise Mean Percentage performance Hard Version

Overall Mean Percentage in English Hard Version		
	Girls	Boys
BAHRIA FDN.E/D	68.44	58.97
CADET COLLEGES		80.52
CHILAS DIRECTORATE	51.98	55.21
F.G.E.I (C & G)	65.78	63.78
FAUJI FDN, E/D	73.87	69.95
FRONTIER CORPS	65.54	57.63
GILGIT DIRECTORATE	51.56	53.69
O.P.F. E/D	69.77	62.46
OTHERS	70.76	71.36
PAK, ARMY E/D GHQ	71.23	68.17
PRIVATE	63.08	61.30
RANGERS		63.39
SKARDU DIRECTORATE	48.38	48.02

Boys from Cadet Colleges out performed than both boys and girls from all other directorates. The competition of boys and girls from all directorates, except Cadet Colleges, is mixed.

Table 8 Location and Directorate wise overall performance of students on English Hard Version

Province/Area	Directorate Name	Overall Mean Percentage
A.J.K.	BAHRIA FDN.E/D	66.26
	F.G.E.I (C & G)	64.87
	FAUJI FDN, E/D	71.82
	O.P.F. E/D	67.14
	PAK, ARMY E/D GHQ	71.51
	PRIVATE	68.46
	BALUCHISTAN	CADET COLLEGES
BALUCHISTAN	F.G.E.I (C & G)	64.08
	FRONTIER CORPS	57.95
	PAK, ARMY E/D GHQ	77.07
	PRIVATE	68.54
	GILGIT-BALTISTAN	BAHRIA FDN.E/D
GILGIT-BALTISTAN	CADET COLLEGES	79.60
	CHILAS DIRECTORATE	54.24
	FAUJI FDN, E/D	70.84
	GILGIT DIRECTORATE	52.60
	OTHERS	71.16
	PAK, ARMY E/D GHQ	66.83
	PRIVATE	59.85
	SKARDU DIRECTORATE	48.23
KHYBER-PUKHTUNKHWA	FRONTIER CORPS	81.55
	PAK, ARMY E/D GHQ	81.04
	PRIVATE	79.73
PUNJAB	F.G.E.I (C & G)	70.08
	PAK, ARMY E/D GHQ	39.97
	RANGERS	63.39

3.3 Comparison of Students Performance by Ability Scores Mathematics

Table 9 Gender Wise Comparison (Mathematics)

Local/Hard	Gender	Overall Ability Score	MCQs Ability Score	CRQs Ability Score
Hard	Female	50.38	49.40	50.67
	Male	49.94	51.10	49.69
	Total	50.12	50.41	50.09
Local	Female	51.75	50.29	51.86
	Male	48.53	50.20	48.46
	Total	50.03	50.24	50.04
Total	Female	51.58	50.18	51.71
	Male	48.75	50.33	48.65
	Total	50.05	50.26	50.05

Above table explored that overall ability score of female students is comparatively better than male students on both local and hard versions. The ability score of both male and female students is about 50%.

Figure 2 Overall ability scores Mathematics

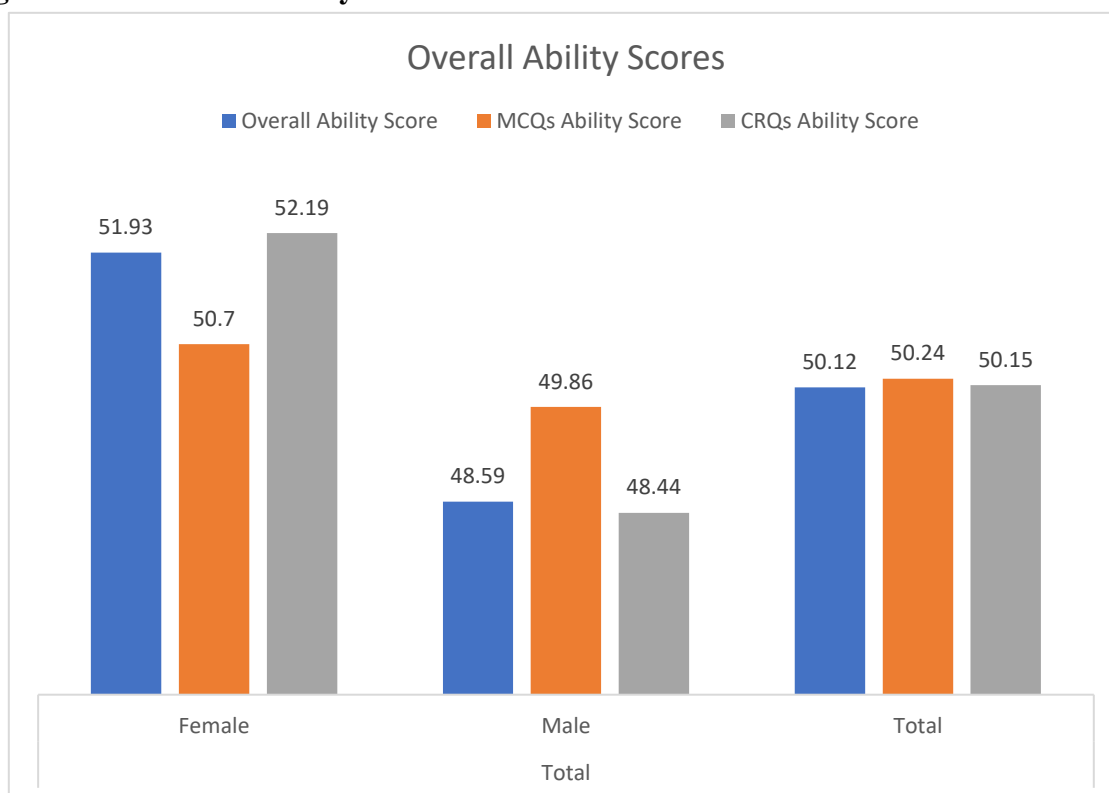


Table 10 Province Wise Comparison (Mathematics)

Province	Overall Ability Score	MCQs Ability Score	CRQs Ability Score
A.J.K.	55.00	52.63	55.11
BALUCHISTAN	49.08	51.21	48.75
FEDERAL	47.85	49.03	47.96
GILGIT-BALTISTAN	48.53	49.49	48.55
KHYBER-PUKHTUNKHWA	52.85	53.00	52.43
OVERSEAS	47.75	49.60	47.69
PUNJAB	51.52	50.87	51.51
SINDH	48.20	49.28	48.24
Total	50.05	50.26	50.05

Above table explored that ability score of students of AJK (55.5%) is best and overseas (47.7%) is least among all provinces.

Table 11 Directorate Wise Comparison (Mathematics)

Directorate	Overall Ability Score	MCQs Ability Score	CRQs Ability Score
BAHRIA FDN.E/D	52.66	50.66	52.81
CADET COLLEGES	58.92	57.16	58.07
CANTT BOARD	51.94	51.72	51.76
CHILAS DIRECTORATE	43.62	51.04	42.82
F.G.E.I (C & G)	50.82	49.89	50.99
FAUJI FDN, E/D	55.10	53.12	54.96
FDE	45.71	47.81	45.92
FRONTIER CORPS	53.16	51.29	53.18
GARRISON	56.69	54.15	56.37
GILGIT DIRECTORATE	46.26	46.93	46.59
K.R.L. E/D	56.44	50.63	57.18
O.P.F. E/D	55.78	52.85	55.71
OTHERS	52.03	49.78	52.36
OVERSEAS	47.96	49.69	47.90
P.A.E.C E/D	53.87	52.62	53.71

P.A.F E/D.PESH	55.46	53.13	55.25
PAK, ARMY E/D GHQ	56.66	54.77	56.14
PAK. NAVY E/D ISB	54.47	52.16	54.39
PRIVATE	48.83	49.42	48.94
RANGERS	57.51	53.85	57.39
SKARDU DIRECTORATE	45.64	47.17	45.90
Total	50.05	50.26	50.05

Above table explored that ability score of students of Cadet Colleges Directorate (58.92%) is best and Chilas directorate (43.62%) is least among all directorates.

Table 12 District Wise Comparison (Mathematics)

District	Overall Ability Score	MCQs Ability Score	CRQs Ability Score
ABBOTTABAD	52.66	52.87	52.23
ASTORE	44.83	47.99	44.79
ATTOCK	52.42	51.24	52.40
BADIN	45.42	50.32	45.15
BAGH	52.37	49.70	52.87
BAHAWALNAGAR	60.10	59.24	58.86
BAHAWALPUR	53.68	53.24	53.29
BANNU	54.31	50.22	54.56
BHIMBER	55.22	52.87	55.16
CHAKWAL	49.88	50.06	49.82
CHAMAN	50.09	45.98	51.21
CHINIOT	44.48	47.29	44.58
D. I. KHAN	55.04	53.50	54.65
DADU	47.78	45.56	48.31
DERA BUGTI	65.17	65.16	61.91
DERA GHAZI KHAN	54.72	59.86	52.99
DIAMIR	48.10	59.87	45.67
DUKI	50.14	50.00	49.98
FAISALABAD	45.79	48.83	45.83
GHANCHE	46.88	48.49	46.89

GHIZER	45.73	46.51	46.12
GHOTKI	41.93	47.74	41.96
GILGIT	49.36	50.01	49.30
GUJRANWALA	54.23	51.80	54.30
GUJRAT	54.99	53.29	54.66
GWADAR	48.79	49.72	49.16
HAFIZABAD	57.43	53.84	57.37
HANGU	54.73	50.49	54.93
HARIPUR	55.96	55.30	55.22
HATTIAN BALA	57.89	59.26	56.20
HUNZA	48.82	48.25	49.10
HYDERABAD	55.78	55.64	55.04
ISLAMABAD	47.91	49.05	48.02
JACOBABAD	42.30	49.34	42.26
JAMSHORO	56.89	54.96	56.23
JHANG	55.29	55.30	54.43
JHELUM	52.61	51.20	52.58
KARACHI CENTRAL	50.09	50.54	49.95
KARACHI EAST	52.84	50.61	53.00
KARACHI KEMARI	39.32	45.53	39.62
KARACHI KORANGI	46.37	47.26	46.66
KARACHI MALIR	48.56	49.00	48.70
KARACHI SOUTH	47.91	47.71	48.29
KARACHI WEST	42.73	46.60	42.96
KASHMORE	52.18	54.09	51.40
KASUR	53.28	52.51	53.13
KHAIRPUR	35.67	45.24	35.68
KHANEWAL	45.78	49.45	45.54
KHARAN	51.03	43.00	53.44
KHARMANG	39.00	43.38	39.64
KHUSHAB	48.09	50.59	47.87
KHUZDAR	51.70	46.91	52.91
KILLA SAIFULLAH	46.28	46.22	46.70
KOHAT	51.50	50.54	51.48

KOHLU	50.52	52.02	50.21
KOTLI	53.05	51.94	53.11
KURRAM	52.25	52.17	51.83
LAHORE	53.96	52.63	53.74
LASBELA	39.96	46.87	40.10
LORALAI	54.89	53.61	54.60
MANDI BAHAUDDIN	55.36	52.53	55.56
MANSEHRA	44.55	49.13	44.48
MARDAN	51.74	53.44	51.12
MASTUNG	38.63	48.07	38.47
MATIARI	53.62	59.55	52.18
MIANWALI	52.73	52.83	52.42
MIRPUR	52.13	50.87	52.22
MIRPUR KHAS	45.63	46.76	45.79
MULTAN	53.91	52.20	53.82
MUZAFFARABAD	55.62	52.13	55.98
MUZAFFARGARH	44.75	48.19	44.91
NAGAR	45.21	45.02	46.06
NAROWAL	52.08	51.76	51.68
NASIRABAD	37.45	44.26	37.99
NAUSHAHRO FEROZE	39.66	44.92	39.92
NOWSHERA	52.34	53.25	51.89
NUSHKI	50.31	52.46	49.29
OKARA	54.42	52.77	54.21
OVERSEAS	47.80	49.64	47.74
PESHAWAR	53.10	52.29	52.88
PISHIN	47.64	50.17	47.16
POONCH	57.60	55.57	57.27
QUETTA	47.05	49.73	46.97
RAHIM YAR KHAN	58.25	55.97	57.63
RAWALPINDI	50.92	50.35	50.98
ROUNDU	43.53	43.96	44.34
S WAZIRISTAN	61.04	61.30	59.36
SARGODHA	54.11	51.95	54.10

SHAHEED BENAZIR ABAD	44.56	52.79	44.15
SHEIKHUPURA	39.73	45.85	39.91
SHIGAR	46.13	47.32	46.45
SIALKOT	52.52	50.74	52.55
SIBBI	56.96	52.90	57.12
SKARDU	51.61	50.37	51.79
SUDHNOTI	53.66	55.84	52.67
SUKKUR	52.54	51.48	52.19
SWABI	45.42	49.47	45.24
SWAT	50.54	49.14	50.71
TANDO ALLAHYAR	42.61	45.99	42.89
TANDO MUHAMMAD KHAN	35.71	44.44	35.89
THARPARKAR	36.32	44.90	36.53
THATTA	42.04	46.13	42.32
VEHARI	43.06	47.40	43.12
ZIARAT	58.46	56.72	57.78
Total	50.05	50.26	50.05

Above table explored that ability score of students of Dera Bughti district (65.17%) is best and Khairpur district (35.67%) is least among all directorates.

Table 13 Gender and location wise Mean Percentage performance (Local)

Overall Mean Percentage in Math Local Version		
Directorate Name	Girls	Boys
BAHRIA FDN.E/D	48.41	47.02
CADET COLLEGES	73.47	57.98
CANTT BOARD	44.93	44.49
F.G.E.I (C & G)	45.83	41.46
FAUJI FDN, E/D	54.47	48.17
FDE	39.27	30.40
FRONTIER CORPS	42.01	34.59
GARRISION	58.01	56.22
K.R.L. E/D	54.65	49.52
O.P.F. E/D	57.94	49.94
OTHERS	49.73	38.34
OVERSEAS	38.38	43.12
P.A.E.C E/D	52.37	50.88
P.A.F E/D.PESH	57.78	54.22
PAK, ARMY E/D GHQ	60.14	55.39

PAK. NAVY E/D ISB	52.12	51.63
PRIVATE	41.54	38.09
RANGERS	61.06	56.72

Above table shows the comparison of male and female students in local version of mathematics. The overall performance of females is better than boys.

Table 14 Location and Directorate wise overall performance of students on Math Local Version

Province/Area	Directorate Name	Overall Mean Percentage	
A.J.K.	PAK, ARMY E/D GHQ	32.52	
BALUCHISTAN	CANTT BOARD	41.32	
	F.G.E.I (C & G)	33.27	
	FAUJI FDN, E/D	45.94	
	FRONTIER CORPS	38.30	
	GARRISION	49.15	
	P.A.F E/D.PESH	46.16	
	PAK, ARMY E/D GHQ	46.51	
	PRIVATE	26.83	
	FEDERAL	BAHRIA FDN.E/D	49.53
FAUJI FDN, E/D		63.03	
FDE		34.36	
O.P.F. E/D		54.69	
OTHERS		51.93	
P.A.E.C E/D		47.24	
P.A.F E/D.PESH		55.36	
PAK, ARMY E/D GHQ		56.80	
PAK. NAVY E/D ISB		49.31	
GILGIT-BALTISTAN	PRIVATE	41.05	
	PAK, ARMY E/D GHQ	56.77	
	KHYBER-PUKHTUNKHWA	CADET COLLEGES	57.03
		CANTT BOARD	54.54
		F.G.E.I (C & G)	46.77
FAUJI FDN, E/D		51.50	
	OTHERS	38.85	

	P.A.F E/D.PESH	53.12
	PAK, ARMY E/D GHQ	57.13
	PRIVATE	43.34
OVERSEAS	OVERSEAS	40.17
PUNJAB	BAHRIA FDN.E/D	47.12
	CADET COLLEGES	63.06
	CANTT BOARD	44.11
	F.G.E.I (C & G)	42.69
	FAUJI FDN, E/D	50.88
	GARRISION	58.60
	K.R.L. E/D	52.39
	OTHERS	37.04
	P.A.E.C E/D	52.04
	P.A.F E/D.PESH	57.56
	PAK, ARMY E/D GHQ	58.58
	PAK. NAVY E/D ISB	53.40
	PRIVATE	41.23
	RANGERS	59.19
SINDH	CANTT BOARD	33.35
	F.G.E.I (C & G)	59.01
	P.A.F E/D.PESH	54.79
	PAK, ARMY E/D GHQ	53.06
	PAK. NAVY E/D ISB	53.92
	PRIVATE	32.43
	RANGERS	45.64

Table 15 Gender and location wise Mean Percentage performance Math Hard

Overall Mean Percentage in Math Hard Version		
Directorate Name	Girls	Boys
BAHRIA FDN.E/D	37.47	30.57
CADET COLLEGES		58.07
CHILAS DIRECTORATE	30.98	35.39
F.G.E.I (C & G)	44.16	41.31
FAUJI FDN, E/D	53.16	50.21
FRONTIER CORPS	49.89	42.87
GILGIT DIRECTORATE	33.26	33.61
O.P.F. E/D	47.43	42.54
OTHERS	33.08	40.72
PAK, ARMY E/D GHQ	50.77	49.66
PRIVATE	41.55	40.17
RANGERS		45.19
SKARDU DIRECTORATE	32.16	33.35

It is apparent form the above table that female students are performing better than boys.

Table 16 Location and Directorate wise overall performance of students on Math Hard Version

Province/Area	Directorate Name	Overall Mean Percentage
A.J.K.	BAHRIA FDN.E/D	46.19
	F.G.E.I (C & G)	42.40
	FAUJI FDN, E/D	51.11
	O.P.F. E/D	45.38
	PAK, ARMY E/D GHQ	52.19
	PRIVATE	44.99
	BALUCHISTAN	CADET COLLEGES
BALUCHISTAN	F.G.E.I (C & G)	49.32
	FRONTIER CORPS	44.52
	PAK, ARMY E/D GHQ	66.89
	PRIVATE	52.95
	GILGIT-BALTISTAN	BAHRIA FDN.E/D
GILGIT-BALTISTAN	CADET COLLEGES	61.22
	CHILAS DIRECTORATE	34.31
	FAUJI FDN, E/D	52.92
	GILGIT DIRECTORATE	33.43
	OTHERS	38.37
	PAK, ARMY E/D GHQ	46.94
	PRIVATE	39.09
	SKARDU DIRECTORATE	32.77
KHYBER-PUKHTUNKHWA	FRONTIER CORPS	75.77
	PAK, ARMY E/D GHQ	66.00
	PRIVATE	55.14
	Total	58.29
PUNJAB	F.G.E.I (C & G)	37.90
	PAK, ARMY E/D GHQ	33.23
	RANGERS	45.19

3.4 Comparison of Students Performance by Ability Scores Biology

Table 17 Gender Wise Comparison (Biology)

Local/Hard	gender	Overall Ability Score	MCQs Ability Score	CRQs Ability Score
Hard	Female	51.25	49.90	52.07
	Male	49.31	50.92	48.60
	Total	50.15	50.48	50.11
Local	Female	50.97	50.44	51.33
	Male	48.75	50.57	48.16
	Total	50.07	50.49	50.05
Total	Female	51.01	50.35	51.45
	Male	48.90	50.66	48.28
	Total	50.09	50.49	50.06

Above table explored that overall ability score of female students is comparatively better than male students on both local and hard versions. The ability score of both male and female students is about 50%.

Figure 3 Overall ability scores Biology

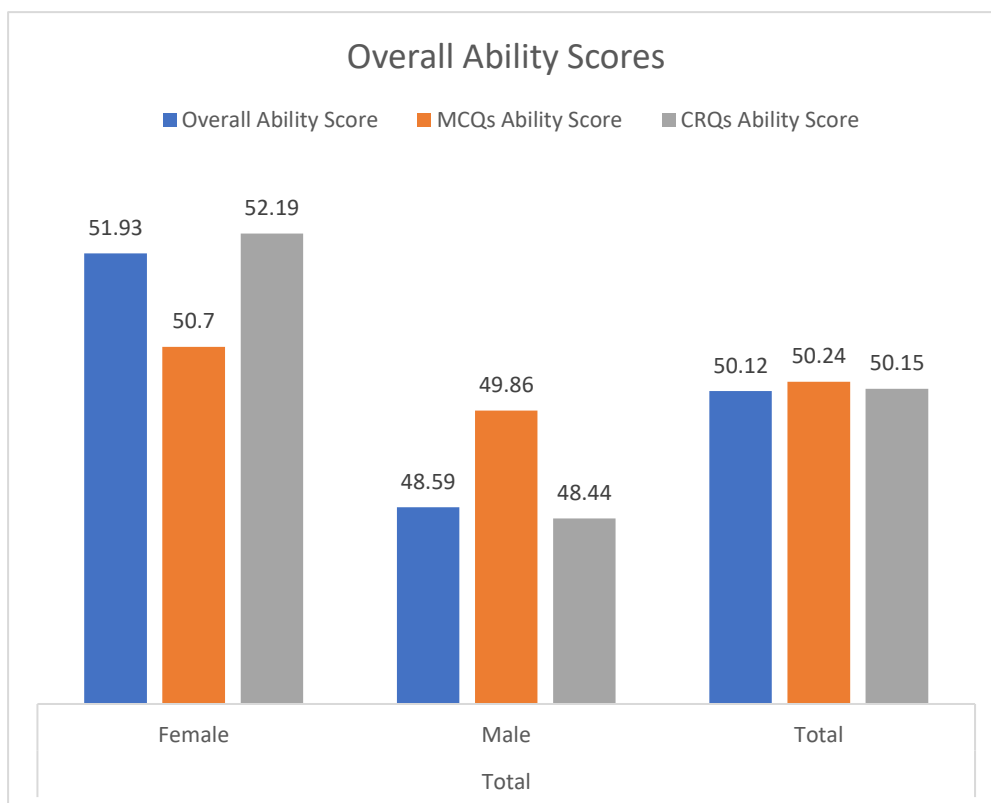


Table 18 Province Wise Comparison (Biology)

Province	Overall Ability Score	MCQs Ability Score	CRQs Ability Score
A.J.K.	57.52	55.18	57.65
BALUCHISTAN	47.94	49.06	47.84
FEDERAL	47.57	48.79	47.61
GILGIT-BALTISTAN	48.51	49.25	48.58
KHYBER-PUKHTUNKHWA	54.10	55.61	52.47
OVERSEAS	48.22	49.12	48.33
PUNJAB	51.90	51.69	51.91
SINDH	46.98	47.17	47.56
Total	50.09	50.49	50.06

Above table explored that ability score of students of AJK (57.5%) is best and Sindh (46.7%) is least among all provinces.

Table 19 Directorate Wise Comparison (Biology)

Directorate	Overall Ability Score	MCQs Ability Score	CRQs Ability Score
BAHRIA FDN.E/D	52.80	51.88	53.00
CADET COLLEGES	58.95	60.65	55.81
CANTT BOARD	52.06	51.74	52.09
CHILAS DIRECTORATE	44.07	47.37	43.72
F.G.E.I (C & G)	49.90	50.22	49.96
FAUJI FDN, E/D	56.22	55.03	56.04
FDE	45.18	46.75	45.49

FRONTIER CORPS	54.63	55.13	53.27
GARRISION	59.36	57.82	58.47
GILGIT DIRECTORATE	46.38	46.56	47.31
K.R.L. E/D	54.71	52.22	55.81
O.P.F. E/D	56.73	55.14	56.60
OTHERS	53.48	54.53	52.40
OVERSEAS	48.72	49.47	48.80
P.A.E.C E/D	54.62	55.69	53.32
P.A.F E/D.PESH	56.00	55.87	55.05
PAK, ARMY E/D GHQ	56.87	56.40	55.90
PAK. NAVY E/D ISB	53.81	53.41	53.41
PRIVATE	48.62	48.86	48.98
RANGERS	56.00	55.26	55.48
SKARDU DIRECTORATE	44.67	45.58	45.52
Total	50.09	50.49	50.06

Above table explored that ability score of students of Garrison directorate (59%) is best and Chilas directorate (44%) is least among all directorates.

Table 20 District Wise Comparison (Biology)

District	Overall Ability Score	MCQs Ability Score	CRQs Ability Score
ABBOTTABAD	52.11	53.24	51.16
ASTORE	43.86	45.59	44.72
ATTOCK	51.16	51.93	50.82
BADIN	49.56	47.64	50.92

BAGH	53.71	51.07	55.05
BAHAWALNAGAR	58.16	58.47	56.34
BAHAWALPUR	52.04	52.11	51.74
BANNU	54.04	51.74	54.66
BHIMBER	54.08	52.75	54.21
CHAKWAL	51.15	49.85	52.12
CHAMAN	51.42	56.50	47.87
CHINIOT	51.22	52.81	50.18
D. I. KHAN	57.75	59.93	55.06
DADU	42.34	45.28	41.83
DERA BUGTI	57.31	54.31	58.25
DERA GHAZI KHAN	57.59	57.67	56.46
DIAMIR	49.47	53.59	46.84
DUKI	50.15	51.62	48.77
FAISALABAD	44.17	44.96	45.02
GHANCHE	45.82	46.39	46.51
GHIZER	48.91	48.88	49.11
GHOTKI	43.82	47.61	43.40
GILGIT	50.63	51.62	50.12
GUJRANWALA	54.76	53.62	54.68
GUJRAT	54.22	53.74	53.88

GWADAR	45.63	43.02	48.09
HAFIZABAD	56.72	55.78	56.45
HANGU	55.25	56.33	53.60
HARIPUR	54.86	58.44	51.86
HATTIAN BALA	50.02	49.19	50.43
HUNZA	47.21	46.57	48.50
HYDERABAD	53.70	54.38	52.57
ISLAMABAD	47.64	48.84	47.67
JACOBABAD	46.53	48.80	45.99
JAMSHORO	52.39	53.66	51.13
JHANG	54.69	55.83	53.13
JHELUM	50.67	50.32	50.87
KARACHI CENTRAL	50.52	49.74	51.00
KARACHI EAST	49.88	50.13	49.84
KARACHI KEMARI	40.07	41.86	41.29
KARACHI KORANGI	43.02	43.19	44.39
KARACHI MALIR	48.42	48.30	48.87
KARACHI SOUTH	45.76	45.26	47.03
KARACHI WEST	42.41	42.54	43.80
KASHMORE	44.47	40.81	47.77
KASUR	51.92	51.19	52.18

KHAIRPUR	43.99	44.61	44.89
KHANEWAL	47.35	47.68	47.70
KHARMANG	42.12	43.10	43.72
KHUSHAB	47.77	48.98	47.64
KHUZDAR	43.80	37.17	50.13
KILLA SAIFULLAH	45.71	46.81	46.01
KOHAT	58.07	58.89	55.88
KOHLU	48.13	50.35	47.25
KOTLI	57.46	56.15	56.86
KURRAM	53.17	50.52	54.95
LAHORE	54.47	54.10	53.97
LARKANA	31.11	40.09	31.43
LASBELA	40.31	41.35	41.78
LORALAI	52.66	54.30	51.09
MANDI BAHAUDDIN	52.13	50.17	53.51
MANSEHRA	47.23	46.51	48.27
MARDAN	53.77	56.24	51.57
MASTUNG	37.68	41.53	38.49
MATIARI	51.72	55.77	48.76
MIANWALI	54.30	55.87	52.76
MIRPUR	53.52	50.70	54.60

MIRPUR KHAS	38.57	40.78	39.69
MULTAN	53.75	53.12	53.68
MUZAFFARABAD	58.45	55.81	58.55
MUZAFFARGARH	47.21	47.20	47.88
NAGAR	46.69	47.13	47.48
NAROWAL	52.25	50.68	52.90
NASIRABAD	41.56	41.00	43.34
NAUSHAHRO FEROZE	41.00	39.73	43.68
NOWSHERA	52.81	54.24	51.55
NUSHKI	60.60	59.13	59.18
OKARA	53.76	53.00	53.74
OVERSEAS	48.28	49.16	48.40
PESHAWAR	54.48	55.50	53.13
PISHIN	49.57	51.46	48.26
POONCH	61.25	58.52	60.82
QUETTA	46.84	48.88	46.61
RAHIM YAR KHAN	56.45	55.73	55.79
RAJANPUR	48.11	43.99	51.38
RAWALPINDI	51.48	51.09	51.71
ROUNDU	41.27	41.70	43.49
S WAZIRISTAN	63.91	64.51	59.66

SARGODHA	54.16	53.03	54.31
SHAHEED BENAZIR ABAD	45.26	47.42	44.98
SHEIKHUPURA	40.91	46.70	39.99
SHIGAR	46.16	48.55	45.54
SIALKOT	51.54	51.93	51.26
SIBBI	58.31	59.83	54.92
SKARDU	50.63	50.34	50.94
SUDHNOTI	58.87	57.17	58.25
SUKKUR	50.93	51.44	50.53
SWABI	44.67	47.65	44.72
SWAT	52.29	56.57	49.54
TANDO ALLAHYAR	40.26	42.07	41.35
TANDO MUHAMMAD KHAN	36.53	38.85	37.78
THARPARKAR	36.95	37.52	39.07
THATTA	43.56	39.44	47.51
VEHARI	47.11	47.29	47.62
ZHOB	58.07	58.29	55.71
ZIARAT	59.56	60.14	56.83
Total	50.09	50.49	50.06

Above table explored that ability score of students of Poonch district (61.25%) is best and Larkana district (31.11%) is least among all directorates.

Table 21 Gender and location wise Mean Percentage performance Biology Local

Overall Mean Percentage Biology Local version		
Directorate Name	Girls	Boys
BAHRIA FDN.E/D	62.52	58.12
CADET COLLEGES	62.10	64.84
CANTT BOARD	62.14	53.30
F.G.E.I (C & G)	56.48	53.52
FAUJI FDN, E/D	66.49	62.95
FDE	50.03	40.71
FRONTIER CORPS	53.39	44.66
GARRISON	69.81	74.47
K.R.L. E/D	66.61	61.24
O.P.F. E/D	68.64	65.26
OTHERS	64.08	59.38
OVERSEAS	53.79	51.41
P.A.E.C E/D	66.36	64.29
P.A.F E/D.PESH	67.76	66.75
PAK, ARMY E/D GHQ	70.07	66.24
PAK. NAVY E/D ISB	64.05	61.12
PRIVATE	53.33	47.64
RANGERS	67.22	65.53

The above table shows that except Garrison, the performances of females is better than boys.

Table 22 Location and Directorate wise overall performance of students on Biology Local Version

Province/Area	Directorate Name	Overall Mean Percentage
A.J.K.	PAK, ARMY E/D GHQ	62.17
BALUCHISTAN	CANTT BOARD	59.72
	F.G.E.I (C & G)	45.14
	FAUJI FDN, E/D	56.80
	FRONTIER CORPS	48.60
	GARRISION	64.59
	P.A.F E/D.PESH	57.61
	PAK, ARMY E/D GHQ	60.99
	PRIVATE	37.71
	FEDERAL	BAHRIA FDN.E/D
FAUJI FDN, E/D		75.83
FDE		46.54
O.P.F. E/D		67.80
OTHERS		65.08
P.A.E.C E/D		64.18
P.A.F E/D.PESH		66.32
PAK, ARMY E/D GHQ		67.69
PAK. NAVY E/D ISB		61.88
PRIVATE		54.15
	Total	51.18
GILGIT-BALTISTAN	PAK, ARMY E/D GHQ	60.60
	PRIVATE	38.18
KHYBER-PUKHTUNKHWA	CADET COLLEGES	67.97
	CANTT BOARD	70.27
	F.G.E.I (C & G)	56.12
	FAUJI FDN, E/D	65.10
	GARRISION	83.69
	OTHERS	67.54
	P.A.F E/D.PESH	65.56
	PAK, ARMY E/D GHQ	66.53

	PRIVATE	55.50
OVERSEAS	OVERSEAS	53.02
	PRIVATE	28.11
PUNJAB	BAHRIA FDN.E/D	60.32
	CADET COLLEGES	50.82
	CANTT BOARD	58.29
	F.G.E.I (C & G)	54.70
	FAUJI FDN, E/D	65.32
	GARRISION	71.19
	K.R.L. E/D	65.43
	OTHERS	60.92
	P.A.E.C E/D	65.72
	P.A.F E/D.PESH	68.39
	PAK, ARMY E/D GHQ	69.97
	PAK. NAVY E/D ISB	73.56
	PRIVATE	54.73
	RANGERS	66.89
SINDH	CADET COLLEGES	73.83
	CANTT BOARD	52.75
	F.G.E.I (C & G)	66.03
	P.A.F E/D.PESH	66.33
	PAK, ARMY E/D GHQ	63.90
	PAK. NAVY E/D ISB	63.56
	PRIVATE	40.47
	RANGERS	61.36

Table 23 Gender and location wise Mean Percentage performance Biology Hard

Overall Mean Percentage Biology Hard version		
Directorate Name	Girls	Boys
BAHRIA FDN.E/D	43.13	43.35
CADET COLLEGES		76.42
CHILAS DIRECTORATE	39.86	37.29
F.G.E.I (C & G)	50.23	49.80
FAUJI FDN, E/D	63.97	65.64
FRONTIER CORPS	61.46	54.61
GILGIT DIRECTORATE	42.57	37.16
O.P.F. E/D	60.64	54.05
OTHERS	47.78	68.13
PAK, ARMY E/D GHQ	61.49	59.33
PRIVATE	52.90	51.40
RANGERS		73.64
SKARDU DIRECTORATE	39.01	35.47

Table 24 Location and Directorate wise overall performance of students on Biology Hard Version

Province/Area	Directorate Name	Overall Mean Percentage
A.J.K.	BAHRIA FDN.E/D	53.37
	F.G.E.I (C & G)	49.91
	FAUJI FDN, E/D	64.90
	O.P.F. E/D	58.00
	PAK, ARMY E/D GHQ	60.47
	PRIVATE	60.23
	BALUCHISTAN	CADET COLLEGES
	F.G.E.I (C & G)	51.31
	FRONTIER CORPS	55.31
	PAK, ARMY E/D GHQ	62.46
	PRIVATE	61.16
	GILGIT-BALTISTAN	BAHRIA FDN.E/D
	CADET COLLEGES	76.85
	CHILAS DIRECTORATE	37.85
	FAUJI FDN, E/D	63.46
	GILGIT DIRECTORATE	40.11
	OTHERS	61.13
	PAK, ARMY E/D GHQ	59.66
	PRIVATE	49.64
	SKARDU DIRECTORATE	37.27
KHYBER-PUKHTUNKHWA	FRONTIER CORPS	70.49
	PAK, ARMY E/D GHQ	71.83
	PRIVATE	72.86
PUNJAB	F.G.E.I (C & G)	38.66
	RANGERS	73.64

3.5 Comparison of Students Performance by Ability Scores Chemistry

Table 25 Gender Wise Comparison (Chemistry)

Local/ Hard	Gender	Overall Ability Score	MCQs Ability Score	CRQs Ability Score
Hard	Female	51.22	49.97	51.79
	Male	49.36	50.95	48.98
	Total	50.10	50.56	50.09
Local	Female	52.38	50.32	52.89
	Male	48.43	49.97	48.18
	Total	50.23	50.13	50.32
Total	Female	52.21	50.27	52.73
	Male	48.59	50.14	48.32
	Total	50.20	50.20	50.29

Above table explored that overall ability score of female students is comparatively better than male students on both local and hard versions. The ability score of both male and female students is about 50%.

Figure 4 Overall ability scores Chemistry

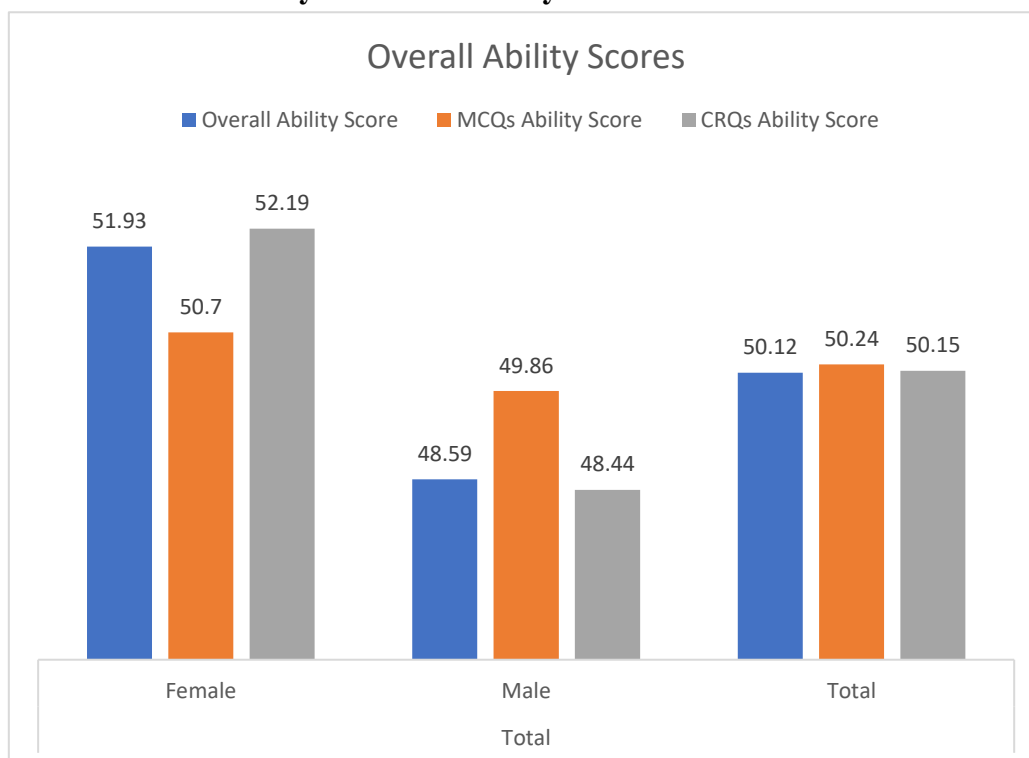


Table 26 Province Wise Comparison (Chemistry)

Province	Overall Ability Score	MCQs Ability Score	CRQs Ability Score
A.J.K.	55.86	53.02	56.53
BALUCHISTAN	49.30	51.66	48.49
FEDERAL	48.04	48.53	48.31
GILGIT-BALTISTAN	48.51	49.55	48.52
KHYBER-PUKHTUNKHWA	54.17	55.70	52.79
OVERSEAS	50.08	51.40	49.69
PUNJAB	51.34	50.71	51.44
SINDH	49.01	48.35	49.57
Total	50.20	50.20	50.29

Above table explored that ability score of students of AJK (55.86%) is best and Federal (48.04%) is least among all provinces.

Table 27 Directorate Wise Comparison (Chemistry)

Directorate	Overall Ability Score	MCQs Ability Score	CRQs Ability Score
BAHRIA FDN.E/D	53.56	52.61	53.32
CADET COLLEGES	55.53	56.29	54.15
CANTT BOARD	51.81	49.91	52.48
CHILAS DIRECTORATE	42.21	48.57	41.86
F.G.E.I (C & G)	50.03	49.70	50.34

FAUJI FDN, E/D	56.04	54.76	55.69
FDE	45.74	46.37	46.41
FRONTIER CORPS	50.81	51.88	50.22
GARRISON	58.89	57.72	57.55
GILGIT DIRECTORATE	44.60	46.10	45.04
K.R.L. E/D	57.16	53.13	57.86
O.P.F. E/D	57.22	54.25	57.29
OTHERS	55.66	55.44	54.54
OVERSEAS	50.29	51.62	49.86
P.A.E.C E/D	54.25	53.24	54.06
P.A.F E/D.PESH	56.23	54.80	55.67
PAK, ARMY E/D GHQ	57.26	55.98	56.44
PAK. NAVY E/D ISB	56.86	55.56	56.12
PRIVATE	49.16	49.14	49.46
RANGERS	58.26	55.83	57.56
SKARDU DIRECTORATE	45.76	46.61	46.26
Total	50.20	50.20	50.29

Above table explored that ability score of students of Garrison (58.89%) is best and FDE (42.21%) is least among all directorates.

Table 28 District Wise Comparison (Chemistry)

District	Overall Ability Score	MCQs Ability Score	CRQs Ability Score
	42.51	42.88	43.88
ABBOTTABAD	52.20	53.52	51.25
ASTORE	44.72	47.18	45.05
ATTOCK	51.43	51.54	51.18
BADIN	52.15	52.98	51.37
BAGH	53.82	50.27	55.16
BAHAWALNAGAR	60.39	61.07	57.74
BAHAWALPUR	54.55	53.99	53.98
BANNU	53.24	53.75	52.33
BHIMBER	55.02	52.30	55.51
CHAKWAL	52.83	52.77	52.40
CHAMAN	41.65	41.13	43.41
CHINIOT	51.95	52.01	51.65
D. I. KHAN	55.33	56.72	53.71
DADU	43.00	45.81	43.16
DERA BUGTI	60.96	62.59	57.55
DERA GHAZI KHAN	56.04	58.22	53.98
DIAMIR	44.37	52.26	43.08
DUKI	51.32	48.03	52.85
FAISALABAD	48.10	47.19	49.00
GHANCHE	48.13	48.26	48.47
GHIZER	45.11	46.25	45.59
GHOTKI	40.07	42.97	40.92
GILGIT	50.88	51.64	50.43
GUJRANWALA	53.87	52.31	53.85
GUJRAT	52.14	50.96	52.15
GWADAR	50.11	50.61	49.87
HAFIZABAD	55.06	55.57	54.00
HANGU	55.26	58.67	53.32
HARIPUR	53.52	54.49	52.54

HATTIAN BALA	56.04	52.03	57.10
HUNZA	44.85	46.87	45.02
HYDERABAD	51.84	50.57	52.05
ISLAMABAD	48.10	48.59	48.36
JACOBABAD	45.53	42.29	47.74
JAMSHORO	54.24	57.41	52.40
JHANG	54.68	55.20	53.43
JHELUM	51.16	49.88	51.48
KARACHI CENTRAL	53.40	51.13	53.87
KARACHI EAST	54.53	53.83	54.00
KARACHI KEMARI	43.00	45.14	43.49
KARACHI KORANGI	45.71	45.17	46.78
KARACHI MALIR	49.35	48.01	50.18
KARACHI SOUTH	45.85	47.22	46.12
KARACHI WEST	43.88	43.24	45.38
KASHMORE	35.05	52.70	32.93
KASUR	51.50	50.31	51.90
KHAIRPUR	48.08	48.49	48.25
KHANEWAL	49.42	49.14	49.48
KHARAN	41.13	43.36	41.93
KHARMANG	40.62	42.82	41.77
KHUSHAB	49.33	50.36	49.22
KHUZDAR	49.50	47.20	50.44
KILLA SAIFULLAH	50.13	46.93	51.30
KOHAT	56.06	57.84	54.19
KOHLU	45.18	47.79	45.44
KOTLI	56.40	53.20	57.12
KURRAM	54.64	54.53	53.64
LAHORE	55.45	53.99	55.04
LARKANA	24.42	37.72	24.74
LASBELA	43.96	47.16	43.98
LORALAI	50.70	49.45	51.46
MANDI BHAUDDIN	55.80	53.13	55.73
MANSEHRA	44.79	44.64	45.82

MARDAN	54.59	56.25	53.10
MASTUNG	41.25	45.13	41.90
MATIARI	53.29	49.57	54.53
MIANWALI	55.07	55.24	54.09
MIRPUR	51.92	49.81	52.69
MIRPUR KHAS	47.34	48.13	47.60
MULTAN	52.65	52.80	52.11
MUZAFFARABAD	54.65	52.62	55.20
MUZAFFARGARH	47.76	48.06	48.00
NAGAR	47.26	47.52	47.92
NAROWAL	51.50	50.34	51.70
NASIRABAD	40.74	45.55	40.62
NAUSHAHRO FEROZE	38.72	43.78	38.85
NOWSHERA	54.86	56.91	53.16
NUSHKI	61.55	62.34	58.64
OKARA	51.08	48.50	52.20
OVERSEAS	50.08	51.40	49.69
PESHAWAR	54.26	55.30	53.11
PISHIN	43.16	41.74	44.98
POONCH	59.80	56.10	60.23
QUETTA	47.28	50.41	46.65
RAHIM YAR KHAN	55.23	53.06	55.21
RAJANPUR	46.75	39.58	50.33
RAWALPINDI	50.44	49.94	50.70
ROUNDU	41.44	43.30	42.38
S WAZIRISTAN	63.28	62.87	60.50
SARGODHA	53.81	51.51	54.14
SHEIKHUPURA	39.74	40.22	41.55
SHIGAR	47.21	48.25	47.35
SIALKOT	53.15	51.99	53.11
SIBBI	51.99	57.60	49.24
SKARDU	51.90	51.11	52.03
SUDHNOTI	56.62	53.92	57.63
SUKKUR	51.33	52.50	50.94

SWABI	49.67	55.17	47.97
SWAT	51.76	58.69	48.90
TANDO ALLAHYAR	39.60	40.09	41.57
TANDO MUHAMMAD KHAN	43.21	44.53	43.95
THARPARKAR	36.43	38.89	37.92
THATTA	42.24	45.95	42.20
VEHARI	49.61	49.12	49.84
ZHOB	54.38	54.86	53.20
ZIARAT	57.91	59.74	55.46
Total	50.20	50.20	50.29

Above table explored that ability score of students of South Waziristan district (63.28%) is best and Larkana district (24.42%) is least among all directorates

Table 29 Gender and location wise Mean Percentage performance Chemistry Local

Overall Mean Percentage Chemistry Local version		
Directorate Name	Girls	Boys
BAHRIA FDN.E/D	62.47	58.88
CADET COLLEGES	56.18	56.06
CANTT BOARD	56.74	56.20
F.G.E.I (C & G)	57.30	52.15
FAUJI FDN, E/D	67.42	62.81
FDE	52.89	40.72
FRONTIER CORPS	59.84	47.05
GARRISION	70.71	69.46
K.R.L. E/D	68.51	49.34
O.P.F. E/D	71.92	59.94
OTHERS	68.20	60.89
OVERSEAS	59.77	52.42
P.A.E.C E/D	59.21	64.47
P.A.F E/D.PESH	67.65	63.94
PAK, ARMY E/D GHQ	69.14	65.55
PAK. NAVY E/D ISB	67.94	65.02
PRIVATE	54.79	50.23
RANGERS	72.26	64.26

Table 30 Location and Directorate wise overall performance of students on Chemistry Local Version

Province/Area	Directorate Name	Overall Mean Percentage
A.J.K.	PAK, ARMY E/D GHQ	54.68
BALUCHISTAN	CANTT BOARD	60.64
	F.G.E.I (C & G)	48.91
	FAUJI FDN, E/D	57.46
	FRONTIER CORPS	51.92
	GARRISION	61.24
	P.A.F E/D.PESH	53.58
	PAK, ARMY E/D GHQ	59.41
	PRIVATE	44.07
FEDERAL	BAHRIA FDN.E/D	64.62
	FAUJI FDN, E/D	75.60
	FDE	46.59
	O.P.F. E/D	67.92
	OTHERS	69.53
	P.A.E.C E/D	61.92
	P.A.F E/D.PESH	67.21
	PAK, ARMY E/D GHQ	69.90
	PAK. NAVY E/D ISB	64.06
	PRIVATE	53.87
KHYBER-PUKHTUNKHWA	CADET COLLEGES	55.69
	CANTT BOARD	64.42
	F.G.E.I (C & G)	57.30
	FAUJI FDN, E/D	64.57
	GARRISION	76.71
	OTHERS	49.94
	P.A.F E/D.PESH	62.54
	PAK, ARMY E/D GHQ	68.78
	PRIVATE	56.70
OVERSEAS	OVERSEAS	56.21
PUNJAB	BAHRIA FDN.E/D	59.08
	CADET COLLEGES	55.99

	CANTT BOARD	55.59
	F.G.E.I (C & G)	53.92
	FAUJI FDN, E/D	64.98
	GARRISON	70.29
	K.R.L. E/D	66.60
	OTHERS	65.02
	P.A.E.C E/D	62.17
	P.A.F E/D.PESH	67.14
	PAK, ARMY E/D GHQ	68.33
	PAK. NAVY E/D ISB	68.56
	PRIVATE	53.60
	RANGERS	68.49
SINDH	CADET COLLEGES	71.60
	CANTT BOARD	57.86
	F.G.E.I (C & G)	64.61
	P.A.F E/D.PESH	62.12
	PAK, ARMY E/D GHQ	56.48
	PAK. NAVY E/D ISB	68.04
	PRIVATE	43.70

Table 31 Gender and location wise Mean Percentage performance

Overall Mean Percentage Chemistry Hard version		
Directorate Name	Girls	Boys
BAHRIA FDN.E/D	52.93	53.39
CADET COLLEGES		78.77
CHILAS DIRECTORATE	46.25	43.83
F.G.E.I (C & G)	56.56	60.20
FAUJI FDN, E/D	73.44	66.33
FRONTIER CORPS	62.86	52.59
GILGIT DIRECTORATE	45.86	44.30
O.P.F. E/D	66.95	52.92
OTHERS	66.03	51.98
PAK, ARMY E/D GHQ	68.65	65.51
PRIVATE	61.51	57.64
RANGERS		63.45
SKARDU DIRECTORATE	49.16	44.97

Above figures shows that the except for Cadet Colleges, the performance of females is better.

Table 32 Location and Directorate wise overall performance of students on Chemistry Hard Version

Province/Area	Directorate Name	Overall Mean Percentage
A.J.K.	BAHRIA FDN.E/D	64.17
	F.G.E.I (C & G)	59.15
	FAUJI FDN, E/D	68.69
	O.P.F. E/D	61.04
	PAK, ARMY E/D GHQ	67.49
	PRIVATE	64.39
	BALUCHISTAN	CADET COLLEGES
	F.G.E.I (C & G)	54.77
	FRONTIER CORPS	54.39
	PAK, ARMY E/D GHQ	69.94
	PRIVATE	66.56
	GILGIT-BALTISTAN	BAHRIA FDN.E/D
	CADET COLLEGES	79.12
	CHILAS DIRECTORATE	44.22
	FAUJI FDN, E/D	74.47
	GILGIT DIRECTORATE	45.04
	OTHERS	56.66
	PAK, ARMY E/D GHQ	65.82
	PRIVATE	57.14
	SKARDU DIRECTORATE	47.10
KHYBER-PUKHTUNKHWA	FRONTIER CORPS	70.73
	PAK, ARMY E/D GHQ	71.88
	PRIVATE	76.61
PUNJAB	F.G.E.I (C & G)	50.54
	PAK, ARMY E/D GHQ	52.36
	RANGERS	63.45

3.6 Comparison of Students Performance by Ability Scores Physics

Table 33 Gender Wise Comparison (Physics)

Local/Hard	Gender	Overall Ability Score	MCQs Ability Score	CRQs Ability Score
Hard	Female	51.06	50.47	51.30
	Male	49.56	50.52	49.41
	Total	50.16	50.50	50.17
Local	Female	52.07	50.73	52.33
	Male	48.39	49.72	48.24
	Total	50.11	50.19	50.15
Total	Female	51.93	50.70	52.19
	Male	48.59	49.86	48.44
	Total	50.12	50.24	50.15

Above table explored that overall ability score of female students is comparatively better than male students on both local and hard versions. The ability score of both male and female students is about 50%.

Figure 5 Overall ability scores Physics

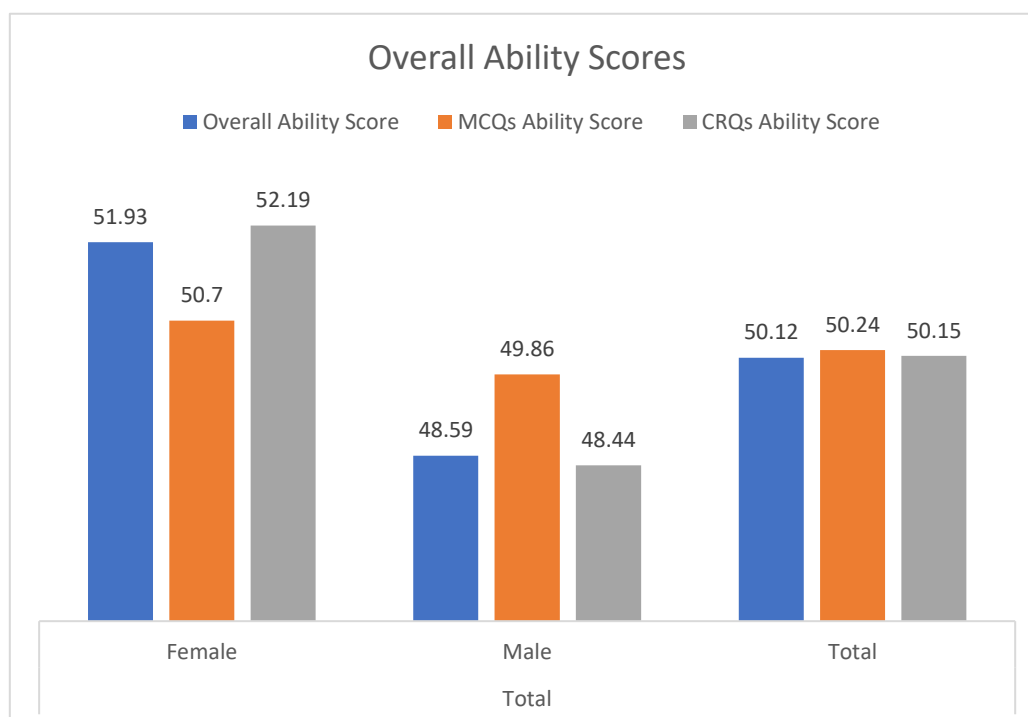


Table 34 Province Wise Comparison (Physics)

Province	Overall Ability Score	MCQs Ability Score	CRQs Ability Score
A.J.K.	57.06	54.43	57.51
BALUCHISTAN	49.49	50.80	49.20
FEDERAL	47.67	48.75	47.71
GILGIT-BALTISTAN	48.62	49.45	48.62
KHYBER-PUKHTUNKHWA	52.72	53.65	51.99
OVERSEAS	48.82	48.59	49.05
PUNJAB	51.65	51.02	51.72
SINDH	48.43	48.43	48.74
Total	50.12	50.24	50.15

Above table explored that ability score of students of AJK (57.06%) is best and Federal (47.67%) is least among all provinces.

Table 35 Directorate Wise Comparison (Physics)

Directorate	Overall Ability Score	MCQs Ability Score	CRQs Ability Score
BAHRIA FDN.E/D	54.02	52.25	54.15
CADET COLLEGES	56.92	59.12	55.10
CANTT BOARD	51.94	51.24	52.09
CHILAS DIRECTORATE	40.90	46.36	40.72

F.G.E.I (C & G)	49.67	49.94	49.73
FAUJI FDN, E/D	56.96	55.24	56.70
FDE	45.38	47.10	45.56
FRONTIER CORPS	50.02	52.65	49.16
GARRISON	59.13	56.51	58.61
GILGIT DIRECTORATE	44.36	46.93	44.42
K.R.L. E/D	57.76	52.66	59.10
O.P.F. E/D	58.33	55.67	58.11
OTHERS	51.86	56.18	49.62
OVERSEAS	49.17	48.84	49.38
P.A.E.C E/D	54.49	53.52	54.19
P.A.F E/D.PESH	55.71	54.44	55.40
PAK, ARMY E/D GHQ	57.48	56.09	56.86
PAK. NAVY E/D ISB	56.01	54.27	55.74
PRIVATE	49.05	49.06	49.29
RANGERS	56.79	55.00	56.53
SKARDU DIRECTORATE	45.88	45.84	46.69
Total	50.12	50.24	50.15

Above table explored that ability score of students of Garrison (59.13%) is best and Chilas directorate (40.90%) is least among all directorates.

Table 36 District Wise Comparison (Physics)

District	Overall Ability Score	MCQs Ability Score	CRQs Ability Score
ABBOTTABAD	52.37	52.35	52.06
ASTORE	45.05	48.18	44.68
ATTOCK	51.88	51.91	51.70
BADIN	51.56	50.15	51.80
BAGH	54.42	51.30	55.67
BAHAWALNAGAR	55.21	55.44	54.47
BAHAWALPUR	53.83	52.98	53.62
BANNU	51.93	50.93	51.95
BHIMBER	55.41	52.59	56.13
CHAKWAL	49.69	49.28	50.10
CHAMAN	42.93	43.87	43.94
CHINIOT	45.58	43.46	47.02
D. I. KHAN	55.49	56.75	54.25
DADU	36.68	39.90	38.03
DERA BUGTI	53.98	51.61	54.58
DERA GHAZI KHAN	57.25	58.22	55.94
DIAMIR	42.58	48.91	41.87
DUKI	51.73	50.51	51.76

FAISALABAD	47.25	46.31	48.11
GHANCHE	47.08	46.23	48.03
GHIZER	45.07	48.08	44.61
GHOTKI	44.96	47.47	44.88
GILGIT	50.89	52.24	50.16
GUJRANWALA	53.85	51.97	54.05
GUJRAT	56.67	55.16	56.31
GWADAR	62.72	61.63	61.06
HAFIZABAD	56.24	53.70	56.67
HANGU	53.58	55.72	52.15
HARIPUR	52.82	55.51	51.39
HATTIAN BALA	44.38	44.66	45.13
HUNZA	48.20	46.52	49.34
HYDERABAD	50.75	50.62	50.80
ISLAMABAD	47.74	48.81	47.77
JACOBABAD	44.46	44.59	45.38
JAMSHORO	54.17	54.97	52.96
JHANG	52.83	53.80	52.17
JHELUM	50.78	50.53	50.79
KARACHI CENTRAL	51.82	50.69	51.95
KARACHI EAST	52.69	51.60	52.73

KARACHI KEMARI	42.43	42.93	43.49
KARACHI KORANGI	47.34	46.88	47.97
KARACHI MALIR	47.70	48.13	47.96
KARACHI SOUTH	44.20	45.01	44.88
KARACHI WEST	44.70	44.69	45.63
KASHMORE	39.80	53.30	37.65
KASUR	53.96	53.82	53.55
KHAIRPUR	46.99	48.02	47.08
KHANEWAL	51.07	50.93	50.88
KHARAN	36.91	41.46	37.79
KHARMANG	43.88	44.57	44.76
KHUSHAB	49.58	48.84	49.90
KHUZDAR	52.40	52.14	51.93
KILLA SAIFULLAH	50.37	51.75	49.54
KOHAT	55.42	55.66	54.46
KOHLU	47.44	49.89	46.87
KOTLI	57.38	54.50	57.99
KURRAM	46.72	51.66	45.60
LAHORE	55.50	54.07	55.15
LARKANA	28.49	48.03	26.60
LASBELA	41.87	42.25	43.10

LORALAI	58.66	55.45	59.09
MANDI BAHAUDDIN	54.93	54.06	54.69
MANSEHRA	45.86	44.94	46.92
MARDAN	50.92	52.84	50.09
MASTUNG	43.90	54.70	41.10
MATIARI	45.78	48.56	45.49
MIANWALI	53.32	52.48	53.13
MIRPUR	56.37	54.75	56.09
MIRPUR KHAS	42.34	42.95	43.50
MULTAN	53.41	52.07	53.36
MUZAFFARABAD	56.38	53.68	57.17
MUZAFFARGARH	52.20	48.23	53.51
NAGAR	46.57	48.54	46.49
NAROWAL	53.18	49.00	54.40
NASIRABAD	38.41	43.98	38.55
NAUSHAHRO FEROZE	39.46	40.37	40.82
NOWSHERA	52.37	53.05	51.82
NUSHKI	46.82	62.65	42.58
OKARA	51.59	50.46	52.06
OVERSEAS	48.82	48.61	49.05
PESHAWAR	53.45	54.39	52.70

PISHIN	39.58	41.27	40.72
POONCH	61.22	58.79	60.66
QUETTA	50.63	52.01	50.08
RAHIM YAR KHAN	55.35	52.64	55.85
RAJANPUR	48.90	37.08	54.30
RAWALPINDI	50.88	50.49	50.99
ROUNDU	46.18	46.23	46.64
S WAZIRISTAN	62.28	62.45	59.80
SARGODHA	55.12	52.77	55.37
SHAHEED BENAZIR ABAD	43.63	45.41	44.04
SHEIKHUPURA	41.72	42.07	43.07
SHIGAR	47.29	47.28	47.95
SIALKOT	53.05	50.92	53.44
SIBBI	53.40	50.72	54.46
SKARDU	51.63	50.57	51.92
SUDHNOTI	57.55	55.52	57.15
SUKKUR	49.70	52.20	49.09
SWABI	45.23	46.49	45.56
SWAT	48.27	50.34	47.85
TANDO ALLAHYAR	44.30	43.46	45.55
TANDO MUHAMMAD KHAN	38.42	37.88	40.70

THARPARKAR	37.42	39.88	38.71
VEHARI	48.49	47.02	49.44
ZHOB	52.68	55.82	50.79
ZIARAT	59.36	59.01	57.53
Total	50.12	50.24	50.15

Above table explored that ability score of students of Gawader district (62.72%) is best and Khairpur district (28.49%) is least among all directorates.

Table 37 *Gender and location wise Mean Percentage performance in Physics Local Version*

Overall Mean Percentage in Physics Local Version		
Directorate Name	Girls	Boys
BAHRIA FDN.E/D	59.35	54.18
CADET COLLEGES	61.89	57.95
CANTT BOARD	55.91	50.03
F.G.E.I (C & G)	53.22	47.82
FAUJI FDN, E/D	63.05	59.61
FDE	48.12	37.73
FRONTIER CORPS	51.50	49.83
GARRISION	64.95	64.37
K.R.L. E/D	64.37	60.50
O.P.F. E/D	66.49	61.48
OTHERS	62.88	37.42
OVERSEAS	49.90	45.13
P.A.E.C E/D	58.60	57.16
P.A.F E/D.PESH	61.76	59.75
PAK, ARMY E/D GHQ	64.54	61.32
PAK. NAVY E/D ISB	60.96	60.96
PRIVATE	49.50	44.71
RANGERS	63.11	60.97

Above table explored that except K.R.L E/D, girls from all other directorates performed better than boys.

Table 38 *Location and Directorate wise overall performance of students on Physics Local Version*

Province Area	Directorate Name	Overall Mean Percentage
A.J.K.	PAK, ARMY E/D GHQ	45.11
BALUCHISTAN	CANTT BOARD	57.41
	F.G.E.I (C & G)	43.34
	FAUJI FDN, E/D	47.61
	FRONTIER CORPS	50.48
	GARRISION	62.17
	P.A.F E/D.PESH	55.00
	PAK, ARMY E/D GHQ	57.78
	PRIVATE	40.17
	FEDERAL	BAHRIA FDN.E/D
FAUJI FDN, E/D		67.86
FDE		42.57
O.P.F. E/D		64.38
OTHERS		66.44
P.A.E.C E/D		54.47
P.A.F E/D.PESH		63.92
PAK, ARMY E/D GHQ		62.54
PAK. NAVY E/D ISB		58.89
GILGIT-BALTISTAN	PRIVATE	48.51
	PAK, ARMY E/D GHQ	60.71
KHYBER-PUKHTUNKHWA	PRIVATE	38.53
	CADET COLLEGES	59.14
	CANTT BOARD	58.77
	F.G.E.I (C & G)	47.56
	FAUJI FDN, E/D	56.38
	GARRISION	70.19
	OTHERS	32.06
	P.A.F E/D.PESH	58.08

	PAK, ARMY E/D GHQ	61.00
	PRIVATE	44.93
OVERSEAS	OVERSEAS	47.76
	PRIVATE	35.16
PUNJAB	BAHRIA FDN.E/D	55.77
	CADET COLLEGES	52.92
	CANTT BOARD	54.44
	F.G.E.I (C & G)	50.70
	FAUJI FDN, E/D	61.79
	GARRISION	63.75
	K.R.L. E/D	62.69
	OTHERS	42.39
	P.A.E.C E/D	58.62
	P.A.F E/D.PESH	61.23
	PAK, ARMY E/D GHQ	63.90
	PAK. NAVY E/D ISB	69.41
	PRIVATE	49.10
	RANGERS	62.53
SINDH	CADET COLLEGES	77.15
	CANTT BOARD	45.22
	F.G.E.I (C & G)	54.71
	P.A.F E/D.PESH	59.00
	PAK, ARMY E/D GHQ	60.80
	PAK. NAVY E/D ISB	62.03
	PRIVATE	37.38
	RANGERS	53.78

Table 39 Gender and location wise Mean Percentage performance Physics Hard version

Overall Mean Percentage Physics Hard version		
Directorate Name	Girls	Boys
BAHRIA FDN.E/D	50.51	48.35
CADET COLLEGES		77.11
CHILAS DIRECTORATE	39.24	32.71
F.G.E.I (C & G)	47.46	55.81
FAUJI FDN, E/D	67.56	64.42
FRONTIER CORPS	55.82	45.78
GILGIT DIRECTORATE	37.79	37.82
O.P.F. E/D	56.10	51.11
OTHERS	59.67	66.73
PAK, ARMY E/D GHQ	66.96	60.80
PRIVATE	54.65	51.67
RANGERS		55.35
SKARDU DIRECTORATE	39.12	36.90

Boys from Cadet Colleges out performed both boys and girls from all other directorates. The competition of boys and girls from all directorate, except Cadet Colleges, is mixed.

Table 40 Location and Directorate wise overall performance of students on Physics Hard Version

Province/Area	Directorate Name	Overall Mean Percentage
A.J.K.	BAHRIA FDN.E/D	61.81
	F.G.E.I (C & G)	52.01
	FAUJI FDN, E/D	66.16
	O.P.F. E/D	54.10
	PAK, ARMY E/D GHQ	64.87
	PRIVATE	56.74
	BALUCHISTAN	CADET COLLEGES
	F.G.E.I (C & G)	45.73
	FRONTIER CORPS	46.82
	PAK, ARMY E/D GHQ	62.41
	PRIVATE	62.37
	GILGIT-BALTISTAN	BAHRIA FDN.E/D
	CADET COLLEGES	78.52
	CHILAS DIRECTORATE	34.10
	FAUJI FDN, E/D	63.59
	GILGIT DIRECTORATE	37.81
	OTHERS	64.11
	PAK, ARMY E/D GHQ	62.50
	PRIVATE	50.96
	SKARDU DIRECTORATE	37.99
KHYBER-PUKHTUNKHWA	FRONTIER CORPS	68.40
	PAK, ARMY E/D GHQ	68.74
	PRIVATE	75.85
PUNJAB	F.G.E.I (C & G)	61.74
	PAK, ARMY E/D GHQ	15.89
	RANGERS	55.35

Following table explored Percentage of students who correctly solved, remembering, understanding and applying level items.

Table 41 Overall performance of students as per cognitive levels

Subject/ Version	Percentage of MCQs Remembering	Percentage of MCQs Understanding	Percentage of MCQs Applying and Higher Order	Percentage of CRQs Remembering	Percentage of CRQs Understanding	Percentage of CRQs Applying and Higher Order
English	61.2	56.5	0.0	66.9	48.8	60.9
Physics	58.9	57.0	62.0	49.3	45.1	25.3
Chemistry	67.9	57.7	96.9	37.0	49.0	41.0
Biology	66.8	59.1	0.0	43.7	36.2	0.0
Math	56.9	47.3	0.0	0.0	35.3	26.6

In Physics and Chemistry only one analyzing level MCQ was in the paper. So their result may not illustrate true picture as they contain 25% guessing chance or some expert may not rate them as analyzing level items.

Chapter 4 Student Performance as per Trends in International Mathematics and Science Studies (TIMSS) Scale

The TIMSS-2019 Scale grade 8 (Science and Math) is used to report students' performance. Its ability scale 0-1000 based on IRT. The Students International Benchmarks are used to bifurcate students' performance as below. TIMSS uses five international benchmarks to scale the scores: Advanced, High, Intermediate, Low and Not Achieved. TIMSS uses to describe achievement at four points along the scale: Advanced (625 or higher), High (550 or higher), Intermediate (475 or higher), and Low (400 or higher)¹. These benchmarks are based on what students know and can do at each level.

Table 42 *Students Performance Level in English in Terms of TIMSS*

Students Performance Level in English				
Paper Type	Gender	International Benchmark	Frequency	Percent
Hard	Female	Low	1210	14.2
		Intermediate	2302	27.1
		High	2517	29.6
		Advanced	2470	29.1
		Total	8499	100
	Male	Low	1527	14.9
		Intermediate	2561	25
		High	2993	29.2
		Advanced	3173	30.9
		Total	10254	100
Local	Female	Low	5202	11.8
		Intermediate	10506	23.9
		High	12506	28.4
		Advanced	15766	35.8
		Total	43980	100
	Male	Low	9154	19.9
		Intermediate	11522	25
		High	12558	27.3
		Advanced	12800	27.8
		Total	46034	100

Table 43 Students Performance Level in Mathematics in Terms of TIMSS

Students Performance Level in Mathematics				
Paper Type	Gender	International Benchmarks	Frequency	Percent
Hard	Female	Low	543	13.1
		Intermediate	1082	26
		High	1273	30.6
		Advanced	1260	30.3
		Total	4158	100
	Male	Low	1070	17.5
		Intermediate	1564	25.6
		High	1564	25.6
		Advanced	1905	31.2
		Total	6103	100
Local	Female	Low	3348	11.3
		Intermediate	6049	20.3
		High	8826	29.7
		Advanced	11516	38.7
		Total	29739	100
	Male	Low	7581	22.3
		Intermediate	7923	23.3
		High	8687	25.5
		Advanced	9864	29
		Total	34055	100

Table 44 Students Performance Level in Biology in Terms of TIMSS

Students Performance Level in Biology				
Paper Type	Gender	International Benchmarks	Frequency	Percent
Hard	Female	Low	489	8.7
		Intermediate	1480	26.3
		High	1852	32.9
		Advanced	1802	32
		Total	5623	100
	Male	Low	1477	20.2
		Intermediate	1803	24.7
		High	1767	24.2
		Advanced	2265	31
		Total	7312	100
Local	Female	Low	3639	12.3
		Intermediate	6833	23.2
		High	8608	29.2
		Advanced	10435	35.4
		Total	29515	100
	Male	Low	4342	21.8
		Intermediate	4500	22.6
		High	5136	25.7
		Advanced	5968	29.9
		Total	19946	100

Table 45 Students Performance Level in Chemistry in Terms of TIMSS

Students Performance Level in Chemistry				
Paper Type	Gender	International Benchmarks	Frequency	Percent
Hard	Female	Low	600	11.6
		Intermediate	1229	23.8
		High	1560	30.3
		Advanced	1765	34.2
		Total	5154	100
	Male	Low	1442	18.4
		Intermediate	2112	27
		High	1940	24.8
		Advanced	2334	29.8
		Total	7828	100
Local	Female	Low	2829	9.4
		Intermediate	6064	20.1
		High	9095	30.1
		Advanced	12238	40.5
		Total	30226	100
	Male	Low	7577	20.9
		Intermediate	8878	24.5
		High	9723	26.9
		Advanced	10007	27.7
		Total	36185	100

Table 46 Students Performance Level in Physics in Terms of TIMSS

Students Performance Level in Physics				
Paper Type	Gender	International Benchmarks	Frequency	Percent
Hard	Female	Low	639	11.6
		Intermediate	1511	27.4
		High	1552	28.1
		Advanced	1821	33
		Total	5523	100
	Male	Low	1470	17.7
		Intermediate	2119	25.5
		High	2280	27.4
		Advanced	2442	29.4
		Total	8311	100
Local	Female	Low	3339	9.4
		Intermediate	7824	22.1
		High	10671	30.1
		Advanced	13560	38.3
		Total	35394	100
	Male	Low	8612	21.3
		Intermediate	10636	26.3
		High	10365	25.7
		Advanced	10782	26.7
		Total	40395	100

Table 47 Overall Subject-Wise Comparison of Students Performance Level in Terms of TIMSS

Paper Type	Gender	International Benchmark	Chemistry		Physics		Biology		Mathematics		English	
			Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Hard	Female	Low	600	11.6	639	11.6	489	8.7	543	13.1	1210	14.2
		Intermediate	1229	23.8	1511	27.4	1480	26.3	1082	26	2302	27.1
		High	1560	30.3	1552	28.1	1852	32.9	1273	30.6	2517	29.6
		Advanced	1765	34.2	1821	33	1802	32	1260	30.3	2470	29.1
		Total	5154	100	5523	100	5623	100	4158	100	8499	100
	Male	Low	1442	18.4	1470	17.7	1477	20.2	1070	17.5	1527	14.9
		Intermediate	2112	27	2119	25.5	1803	24.7	1564	25.6	2561	25
		High	1940	24.8	2280	27.4	1767	24.2	1564	25.6	2993	29.2
		Advanced	2334	29.8	2442	29.4	2265	31	1905	31.2	3173	30.9
		Total	7828	100	8311	100	7312	100	6103	100	10254	100
Local	Female	Low	2829	9.4	3339	9.4	3639	12.3	3348	11.3	5202	11.8
		Intermediate	6064	20.1	7824	22.1	6833	23.2	6049	20.3	10506	23.9
		High	9095	30.1	10671	30.1	8608	29.2	8826	29.7	12506	28.4
		Advanced	12238	40.5	13560	38.3	10435	35.4	11516	38.7	15766	35.8
		Total	30226	100	35394	100	29515	100	29739	100	43980	100
	Male	Low	7577	20.9	8612	21.3	4342	21.8	7581	22.3	9154	19.9
		Intermediate	8878	24.5	10636	26.3	4500	22.6	7923	23.3	11522	25
		High	9723	26.9	10365	25.7	5136	25.7	8687	25.5	12558	27.3
		Advanced	10007	27.7	10782	26.7	5968	29.9	9864	29	12800	27.8
		Total	36185	100	40395	100	19946	100	34055	100	46034	100

On the bases on “Advance Level” It seems that Girls are outperforming than boys in all local versions of all subjects while hard version of Physics, Chemistry and Biology students only showed a fractional better performance in Mathematics and English.

Chapter 5 Most Left over Questions

Following table shows most left over (Attempted 0-30%) questions in section A, B and C. The items also explored the difficult content/topics based on students' responses.

Table 48 *Left over questions*

Least favourable Questions Attempted by (0-30)% students	Mathematics					
	Math H			Math L		
	Section A	Section B	Section C	Section A	Section B	Section C
	Item1(iii)	Item2(xiv)	Item0005	Item1(viii)		Item0005
	Item1(vi)			Item1(v)		
	Item1(xii)			Item1(xv)		
				Item1(xiii)		
				Item1(vi)		
				Item1(vii)		
				Item1(ix)		
				Item1(xiv)		
				Item1(xi)		
	Physics					
	Physics H			Physics L		
	Section A	Section B	Section C	Section A	Section B	Section C
	Item1(viii)		Item0004	Item1(viii)		Item0005
				Item1(xi)		
	Chemistry					
	Chemistry H			Chemistry L		
	Section A	Section B	Section C	Section A	Section B	Section C
	Item1(x)		Item0005			Item0005
	Biology					
	Biology H			Biology L		
	Section A	Section B	Section C	Section A	Section B	Section C
			Item0003	Item1(viii)		

	English					
	English H			English L		
	Section A	Section B	Section C	Section A	Section B	Section C
	Item1(8)			Item1(09)		
			Item1(11)			

1. Most left over question were opted and responded correctly by only 0 to 30 percentage students. It may indicate that these SLOs aligned with these questions are difficult to understand. Teachers may be more focused on these SLOs during teaching-learning process. Teachers may be also revised corresponding SLOs of Grade 8 during teaching these difficult SLOs of Grade 9 so that students be able to understand underlying concept of these SLOs.
2. Comparison of ability scores explored students' from a few directorates need more attention to improve their performance.
3. Girls are performing better than boys, so teachers of boys' institutions may guide their students to prepare themselves for final exams.
4. Teachers' training on "Understanding Bloom's Taxonomy" may make them able to understand demand of curriculum and then improving their teaching.

Chapter 6 Way Forward/Recommendations

1. Based on the analysis of the "Advance Level" exam results, it is recommended that further investigation be conducted to determine the reasons for the gender gap in academic performance. This investigation should include a review of the teaching methods and curriculum used in schools, as well as any potential social or cultural factors that may be contributing to the disparity.
2. Additionally, it is recommended that educators and policymakers consider implementing strategies to support and encourage boys' academic achievement in all subjects, particularly in Mathematics and English. This could include targeted interventions, such as tutoring or mentoring programs, that are designed to address specific areas of difficulty for boys.
3. Furthermore, it is suggested that the exam boards and schools use this data to inform their practices and policies, particularly in relation to gender equality in education. This could involve promoting equal opportunities for all students, regardless of gender, and ensuring that all students have access to the resources and support they need to succeed academically.
4. Based on the finding that some students from a few directorates require more attention to improve their performance, it is recommended that targeted interventions be implemented to support these students. This could include individualized support, such as tutoring or mentoring programs, that are designed to address specific areas of difficulty for these students.
5. Furthermore, it is recommended that the relevant directorates, schools, and educators use this data to inform their practices and policies, particularly in relation to identifying and supporting struggling students. This could involve promoting equal opportunities for all students and ensuring that all students have access to the resources and support they need to succeed academically.
6. It is also recommended that further research be conducted to explore the reasons behind the differences in ability scores among students from different directorates. This could include investigating the impact of curriculum differences or teaching methods on student performance and identifying any

areas where improvements could be made to support students in achieving their full potential.

7. Finally, it is recommended that regular monitoring and evaluation of students' progress be conducted to identify any areas where additional support may be required. This could involve ongoing assessments and feedback, as well as the development of targeted support programs that are designed to meet the specific needs of individual students.
8. Based on the finding that teachers' training on "Understanding Bloom's Taxonomy" may make them able to understand the demand of the curriculum and improve their teaching, it is recommended that such training programs be implemented for teachers. This could include professional development workshops or training sessions that focus on developing a deeper understanding of Bloom's Taxonomy and its application in the classroom.
9. Furthermore, it is recommended that the curriculum be reviewed and revised to incorporate Bloom's Taxonomy as a guiding framework for instructional design and assessment. This could involve aligning learning objectives, instructional strategies, and assessment methods with the different levels of Bloom's Taxonomy to ensure that students are challenged appropriately and are developing higher-order thinking skills.
10. It is also recommended that schools and education policymakers provide ongoing support and resources for teachers to integrate Bloom's Taxonomy into their teaching practices. This could include providing access to teaching materials and resources, as well as opportunities for collaboration and professional learning communities where teachers can share their experiences and best practices.
11. The majority of leftover questions were answered correctly by only 0 to 30 percent of students. This suggests that the corresponding Student Learning Outcomes (SLOs) may be difficult to understand. It is recommended that teachers focus more on these challenging SLOs during the teaching and learning process. Additionally, teachers should consider revising the corresponding SLOs for Grade 8 when teaching these difficult SLOs in Grade 9 to ensure that students can grasp the underlying concepts of these SLOs.
12. Based on the finding that only one analyzing level MCQ was included in the Physics and Chemistry exams, it is recommended that the exams be

reviewed and revised to include a greater number of analyzing level MCQs. This will help ensure that the exams accurately reflect students' abilities and provide a more reliable measure of their understanding of the subject matter.

13. Furthermore, it is recommended that expert reviewers be involved in the development and review of MCQs to ensure that they are appropriately classified based on their level of difficulty and cognitive demand. This could involve engaging subject matter experts or experienced educators in the development of MCQs and involving them in the review process to ensure that the items are appropriately classified and rated.