

Examination Report

Refraction Certificate: Singapore, January 2026

Report prepared by Sian Williams, Lucy Foard & Kiran Sanghara
Psychometric Solutions Group

OVERVIEW

A total of 22 candidates sat the Refraction Certificate exam in Singapore held on 12th January 2026. The examination consists of 10 objective structured clinical examination (OSCE) stations, covering a range of skills required to assess visual acuity, refractive error, and the prescription of spectacles.

The examination consists of 10 OSCE stations. Each station contributes 15 marks to the overall total. The stations used for the examination were:

- SR1 - SR4: Simulated retinoscopy
- NR1 - NR2: Non-cycloplegic retinoscopy
- SC: Subjective refraction: Cylinder
- LN: Lens neutralisation
- SS: Subjective refraction: Sphere
- BB: Binocular balancing / Further refinement

For more information on the structure and content of the exam see the College website.

DATA REPORTING

All scores and pass rates presented in this report are based on data provided to the Psychometric Solutions Group by the College after standard-setting and after the results had been processed and published. Analysis of scores is based on the sum of station scores; pass rates are based on post exam board decisions.

Where cohort sizes are smaller than 10 candidates, performance data (mean scores and pass rates) are suppressed. Where cohort sizes are smaller than 5 candidates, exam reliability estimates (alpha and SEM) are suppressed. Caution should be taken when interpreting statistics from small cohorts.

SUMMARY

The pass mark for this examination was 104/150 (69.3%) resulting in a pass rate of 15/22 (68.2%).

On average, candidates scored highest in the Simulated retinoscopy 3 station. On average, candidates scored lowest in the Subjective Refraction: Cylinder station.

The reliability of the exam was $\alpha=0.54$. Six out of the ten station scores correlated well with overall total exam scores. The Simulated Retinoscopy 2 (SR2) station showed the strongest discriminative power.

STANDARD SETTING

The pass mark for the Refraction Certificate exam is generated using the Hofstee method.

Examiners provide the parameters for the standard setting based upon their judgment of the difficulty of the stations. The following values were used to set the pass mark for this examination:

- The maximum credible pass mark for the examination = 75%
- The minimum credible pass mark for the examination = 60%
- The maximum credible pass rate for the examination = 100%
- The minimum credible pass rate for the examination = 0%

The cumulative fail rate as a function of the pass mark and the co-ordinates derived from the four values above were plotted on a graph. The point where a line joining the two coordinates intersects the cumulative function curve is used to identify the pass mark. This pass mark is rounded down to the nearest achievable mark.

RESULTS

Table 1 shows a summary of the examination results including candidate performance, examination reliability metrics (Cronbach's Alpha and Standard Error of Measurement), and pass mark and pass rate.

Table 1. Summary of results

Statistic	Value	Percentage
Number of candidates	22	
Maximum possible mark	150	
Mean candidate mark	101.5	67.7%
Median candidate mark	105.5	70.3%
Standard deviation	14.7	9.8%
Highest candidate mark	119	79.3%
Lowest candidate mark	63	42%
Reliability	0.54	
Standard error of measurement	10.0	6.7%
Hofstee pass mark (final, rounded)	104 / 150	69.3%
Pass rate	15/22	68.2%

Table 2 shows performance for the cohort on each station in the examination. The station with the highest mean score is highlighted in green (Simulated retinoscopy 3). The station highlighted in red has the lowest mean scores (Subjective refraction: Sphere). The Lens Neutralisation station saw the greatest variation in candidate performance, and the Subjective refraction: Sphere station saw the least variation in candidate performance.

Table 2. Station summary

Station	Category	Mean	Median	Standard deviation	Minimum	Maximum
1	SR1	9.1	9.0	3.3	1	14
2	SR2	11.2	11.5	3.8	0	15
3	SR3	13.2	14.0	2.2	8	15
4	SR4	11.0	11.0	3.4	4	15
5	NR1	11.5	12.5	3.3	3	15
6	NR2	10.8	12.0	3.2	2	14
7	SC	5.1	5.0	1.8	2	8
8	LN	8.6	8.5	5.4	0	15
9	SS	10.4	11.5	3.4	0	15
10	BB	10.7	12.0	3.1	5	14

The relative weights for each skill in refraction (based upon the number of stations) are shown in Table 3.

Table 3. Weights and average score for each skill

Clinical Skill	Number of stations	Contribution to total marks	Median mark
Retinoscopy	6	60%	12
Subjective	3	30%	9
Other	1	10%	8.5

Table 4. Correlation between stations

	SR1	SR2	SR3	SR4	NR1	NR2	SC	LN	SS
SR2	0.74								
SR3	0.50	0.40							
SR4	0.52	0.50	0.60						
NR1	0.20	0.48	0.40	0.35					
NR2	0.10	0.27	0.01	-0.09	0.72				
SC	-0.03	0.00	-0.04	-0.10	-0.19	-0.11			
LN	0.13	0.33	-0.13	0.15	0.37	0.19	0.18		
SS	0.05	0.02	-0.06	0.17	-0.36	-0.42	0.03	-0.22	
BB	-0.27	-0.16	-0.20	-0.02	-0.45	-0.53	-0.09	-0.14	0.63

Within Table 4, cells are highlighted green if the correlation is ≥ 0.50 and orange if the correlation is between 0 and 0.20 (inclusive). Negative correlations are highlighted in red.

There were 19/45 instances of a negative correlation between stations, 12/45 instances of a weak correlation (orange), and 7/45 instances of a strong relationship between stations (green). The strongest *positive* correlation was seen between the SR1 and SR2 stations.

Table 5. Correlation between each station and corrected total score.

Station	SR1	SR2	SR3	SR4	NR1	NR2	SC	LN	SS	BB
Correlation with total score	0.51	0.73	0.35	0.53	0.44	0.08	-0.05	0.22	-0.07	-0.26

Table 5 shows the corrected station-total correlations. This is the correlation between the station score and the overall total score without the score of that specific station included. Six of the ten correlations were positive and of an acceptable strength (correlation ≥ 0.20). Three of the ten stations correlated negatively with corrected total scores. The data suggests that the Simulated Retinoscopy 2 (SR2) and Simulated Retinoscopy 4 (SR4) stations had the strongest relationship with total scores and were therefore the most discriminating.

BREAKDOWN OF RESULTS

Table 6. Breakdown of results by training pathway

	Passed	Total	Pass Rate
In OST	6	10	60%
Not in OST/Unknown	9	12	75%

CUMULATIVE DATA

Table 7. Comparison to previous examinations

Date	Centre	Number of Candidates	Pass mark	Pass rate	Pass rate in OST	% of candidates in OST	Reliability (alpha)	SEM (rounded)
Jan-26	Singapore	22	69.3%	68.2%	60%	45.5%	0.54	10 (7%)
Dec-25	Birmingham	114	71%	77%	92%	46%	0.71	10 (7%)
Nov-25	Cairo	34	69%	68%	100%	9%	0.70	10 (7%)
Oct - 25	Rawalpindi	47	69%	68%	55%	23%	0.83	9 (6%)
Oct - 25	New Delhi	21	65%	43%	50%	10%	0.60	11 (8%)
June - 25	Malaysia	28	70%	71%	75%	14%	0.83	9 (6%)
May -25	Birmingham	152	70%	75%	89%	50%	0.78	10 (7%)
Apr -25	Crete	6	65%	33%	n/a	n/a	-	-
Feb-25	Dubai	16	65%	44%	n/a	0%	0.85	10 (7%)
Jan-25	Mumbai	13	64%	46%	n/a	n/a	0.22	11 (8%)
Jan-25	Singapore	16	68%	63%	78%	56%	0.53	10 (7%)
Dec -24	Birmingham	95	70%	78%	100%	2%	0.65	10 (7%)
Nov-24	Cairo	30	69%	73%	n/a	n/a	0.48	10 (7%)
Sept-24	Malaysia	22	69%	68%	n/a	n/a	0.65	11 (7%)
May-24	Birmingham	100	69%	67%	n/a	n/a	0.76	11 (7%)
Feb-24	Rawalpindi	18	71%	72%	n/a	n/a	0.67	10 (7%)
Feb-24	Chennai	21	67%	52%	n/a	n/a	0.72	12 (8%)
Jan-24	Singapore	14	72%	93%	n/a	n/a	0.40	7 (5%)
Dec-23	Birmingham	75	71%	79%	n/a	n/a	0.70	10 (7%)
Nov-23	Cairo	10	69%	80%	n/a	n/a	0.81	9 (6%)
Sept-23	Birmingham	58	67%	55%	n/a	n/a	0.66	11 (8%)
June-23	Kuching	44	69%	75%	n/a	n/a	0.41	11 (7%)
May-23	Birmingham	75	70%	71%	n/a	n/a	0.79	10 (7%)
Jan-23	Singapore	22	71%	82%	100%	5%	0.54	9 (6%)
Dec-22	London	63	69%	62%	86%	22%	0.73	11 (7%)
Jul-22	Glasgow	109	72%	81%	n/a	n/a	0.85	9 (6%)
May-22	Birmingham	83	72%	80%	94%	20%	0.77	9 (6%)
May-22	Delhi	33	66%	39%	n/a	n/a	0.81	11 (7%)
Apr-22	Cairo	36	73%	86%	n/a	n/a	0.76	8 (5%)
Dec-21	Singapore	131	72%	79%	80%	31%	0.78	10 (6%)
May-21		171	71%	57%	58%	42%	0.83	10 (7%)
Jan-21		39	74%	92%	n/a	n/a	0.51	9 (6%)
Dec-20		141	70%	57%	72%	56%	0.81	11 (8%)
Jun-19		40	70%	57%	n/a	n/a	0.73	11 (7%)
Jun-19		52	74%	67%	n/a^	n/a	0.76	9 (6%)
Apr-19		87	72%	59%	68%	51%	0.54	12 (6%)
Dec-18		68	72%	54%	70%	63%	0.7	11 (6%)
Jul-18		64	75%	67%	77%	55%	0.74	11 (6%)
Jun-18		39	75%	74%	n/a	n/a	0.69	10 (5%)
Apr-18		60	75%	68%	73%	75%	0.55	10 (6%)
Dec-17		63	71%	56%	59%	65%	0.72	11 (6%)
Jul-17		62	72%	61%	68%	60%	0.7	12 (6%)
Apr-17		63	73%	67%	69%	62%	0.7	11 (6%)

Table 8. Performance by Deanery for all Refraction examinations to date (where information is available)

Deanery	Pass	Total	Pass rate (%)
East Midlands	62	84	73.8
East of England	73	99	73.7
Kent, Surrey, and Sussex	69	88	78.4
London	273	357	76.5
North East England	53	72	73.6
North West England	128	165	77.6
Northern Ireland	22	32	68.8
Scotland (East)	23	29	79.3
Scotland (North)	20	25	80
Scotland (South East)	28	32	87.5
Scotland (West)	46	62	74.2
South West England	67	116	57.8
Thames Valley	38	48	79.2
Wales	56	91	61.5
Wessex	44	66	66.7
West Midlands	103	143	72
Yorkshire & Humber	97	139	69.8
Eire	10	19	52.6
Europe and overseas	51	87	58.6
Unknown; N/A	244	392	62.2
Total	1507	2146	70.2