

Examination Report



November Part 2 FRCOphth Written Examination

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Summary

The written paper of the 15th sitting of the part 2 FRCOphth examination was held on 30 November 2015.

This is the fourth of the de-coupled part 2 written papers where the pass mark is elevated by +1 SEM.

The reliability of the examination remains high (KR 0.8), and meets GMC expectations. The proportion of questions with a good item discrimination has fallen to 33% (with a 33% discrimination index greater than 0.250). Two questions were removed from the paper, which was therefore marked out of 178.

The pass mark for the written examination was raised by 1 SEM above the mark identified by the standard set by the Ebel method from 61% to 64%. The pass rate for the examination has fallen to its lowest level at 41%, but remains slightly higher for trainees at 46%. Appendix 3 reviews the pass rates over the last 6 years. The pass mark was 114/178 (64%), which was slightly lower than June 2015.

Thirty-three candidates obtained the Ebel mark but fell below the pass mark of Ebel +1 SEM. The addition of +1 SEM has had a significant impact on the pass rate.

There was no difference in the performance of candidates based upon an analysis of gender, training, ethnicity, country of qualification or first language.

It was notable that performance varied inversely with stage of training. Only 14% candidates in ST7 and 16% in ST6 passed the examination, compared to 58% in ST5 and 63% in ST4. If the performance of the senior trainees is ignored, the pass rate for trainees has stabilised at just below 60%.

The candidates

145 candidates presented themselves for the examination. 79/145 (54%) were in OST, with the majority (45%) in ST5.

The written paper

The written part of the part 2 FRCOphth examination consists of a one multiple choice question paper, which is administered in 2 parts as two 2-hour, 90-question single best answer from 4 MCQ papers. Candidates must pass the written paper to be allowed to sit the clinical part of the examination.

As part of the quality management of the College's assessment process, the written papers are reviewed by the senior examiner after marking, but before the results are known. Two questions were removed from the examination papers as a result of this review.

The Part 2 FRCOphth sub-committee reviews all of the questions with negative 33% item discrimination and low facility.

The MCQ paper blueprint

Table 1

		Paper 1	Paper 2	Total
Basic science			8	8
Clinical ophthalmology		90	37	127
	Cataract & lens	10		10
	Neurology & pupils		15	15
	Glaucoma	10		10
	Strabismus & Paediatrics	16		16
	Retina	20		20
	Uveitis & oncology		12	12
	Trauma, oculoplastics and orbit	14		14
	Cornea & external eye	20		20
	Medicine		10	10
Management & therapeutics	Pharmacology & therapeutics		12	12
Investigations			16	16
Miscellaneous			15	15
Total		90	88*	178

* Two questions were removed from the marking

MCQ paper statistics:

Mean score:	111/178	(63%)
Median score:	111/178	(63%)
Standard deviation:	12	(7%)
Candidates:	145	
KR20: (measurement of reliability)	0.8	
Standard error of measurement (SEM):	5.7	
Range of marks:	75 -138	(42%- 78%)
Pass mark derived from Standard Setting:	108/178	(61%)
<i>(Pass rate without addition of SEM)</i>	<i>93/145</i>	<i>(64%)</i>
Pass mark + 1 SEM	114/178	(64%)

Pass rate: 60/145 (41%)
 Pass rate in OST 36/79 (46%)

Table 2 Distribution of marks

Score	Distribution	Total
71-75	/	1
76-80		0
81-85	/	1
86-90	///	3
91-95	//// //	8
96-100	//// ////	10
101-105	//// //// //// ////	21
106-110	//// //// //// //// ////	25
111-115	//// //// //// / / / / / /	24
116-120	//// //// //// /	16
121-125	//// //// //// //	17
126-130	//// ////	9
131-135	////	5
136-140	///	4
141-145		0
146-150		0
151-155		0
<i>Total</i>		145

Analysis of questions

The Speedwell data provides analysis and identification of questions with low, moderate and high facility, and those, which are good, poor or perverse (negative) discriminators. Ideally all questions should have moderate facility and be good discriminators.

Table 3

	Low (<25 correct)	Moderate (25-74 Correct)	High (>75 correct)	Total
Negative discrimination	1	8	8	17
Poor discrimination (0-0.19)	6	51	45	102
Good discrimination (0.2-0.6)	0	47	12	59
Total	7	106	65	178

Table 3a Performance by topic %

Topic	Facility			Mean	Disc			Number
	Difficult	Moderate	Easy		Negative	Poor	Good	
Basic science	13	75	13	56	25	38	38	8
Cataract & lens	0	50	50	70	0	50	50	10
Cornea & external	5	60	35	62	20	55	25	20
Glaucoma	10	40	40	69	0	80	20	10
Investigations	0	63	38	62	13	50	38	16
Medicine	0	60	40	60	0	80	20	10
Miscellany	7	67	27	61	7	67	27	15
Neurology & pupils*	0	47	53	65	7	67	27	15
Pharmacology	0	67	33	63	17	42	42	12
Retina	10	50	40	58	5	50	45	20
Strab & paed	0	81	19	63	6	50	44	16
Trauma, plastics & orbit	7	64	29	62	0	79	21	14
Uveitis & oncology*	0	50	50	68	25	42	33	12
TOTAL	4	60	36		10	57	33	178

Standard setting for MCQ paper (Ebel method)**Table 4 Classification of the questions**

	Difficult	Moderate	Easy	TOTAL
Essential	0	22	54	76
Important	3	19	45	67
Supplementary	4	13	18	35
Total	7	54	117	178

Table 4a proportion of essential easy questions in last 5 examinations

Examination	Number (total number)	%	Pass mark	Pass rate
Nov 15	54 (178)	30	64	41
June 15	44 (179)	25	65	48
Dec 14	49 (178)	28	65	47
Sep 14	64 (179)	36	63	70
Feb 14	52 (180)	29	58	90

Table 5 Percentage correct by borderline candidates

	Difficult	Moderate	Easy
Essential	0.6	0.7	0.8
Important	0.5	0.55	0.6
Supplementary	0.25	0.3	0.3

Table 5a Actual performance (mean facility for each group)

	Difficult	Moderate	Easy
Essential	no questions	0.65	0.7
Important	0.5	0.55	0.6
Supplementary	0.5	0.55	0.6

Table 6 Weighted score

	Difficult	Moderate	Easy	
Essential	0	15.4	43.2	58.6
Important	1.5	10.45	27	38.95
Supplementary	1	3.9	5.4	10.3
Total	2.5	29.75	75.6	107.85

MCQ pass mark (Ebel + 1 SEM):

Breakdown of Written Results

Table 7 Breakdown of written results by training

	Failed	Passed	Total
In OST	43	36 (46%)	79
Not in OST	42	24 (36%)	66
Total	85	60 (41%)	145

These differences are not statistically significant ($p = 0.17$ Fisher exact probability test)

Table 8 Breakdown of written results by stage of training

	Failed	Passed	Total
ST1	0	0	0
ST2	0	1 (100%)	1
ST3	0	0	0
ST4	6	10 (63%)	16
ST5	15	21 (58%)	36
ST6	16	3 (16%)	19
ST7	6	1 (14%)	7
	43	36 (46%)	79

Table 8a comparison with previous examinations (pass rate %)

Stage of OST	Nov 15	June 15	Dec 14	Sept 14	Feb 14
ST4	63	77	71	NA	100
ST5	58	59	54	61	94
ST6	16	50	64	78	93
ST7	14	13	25	67	100
OST pass rate	46	53	54	71	94
Overall pass rate	41	48	47	70	90

Table 9 Breakdown of results by deanery

	Failed	Passed	Total
East Midlands	2	1	3
East of England	4	3	7
East of Scotland	1	1	2
KSS	1	1	2
London	11	16	27
Mersey	4	2	6
North of Scotland	0	1	1
North Western	2	2	4
Northern	1	0	1
N Ireland	1	0	1
Oxford	1	0	1
Peninsula	0	0	0
Severn	2	0	2
South of Scotland	1	1	2
Wales	4	0	4
Wessex	2	3	5
West Midlands	5	2	7
West of Scotland	1	1	2
Yorkshire	0	2	2
TOTAL	43	36	79

Table 10 Breakdown of written results by gender

	Failed	Passed	Total
Female	43	26	69
Male	41	33	74
Total	84	59	143

Gender unknown for 2 candidates

These differences are not statistically significant ($p = 0.49$ Fisher exact probability test)

Table 11 Breakdown of written results by country of qualification

	Failed	Passed	Total
UK	45	36	81
Outside UK (Inc Republic of Ireland)	36	23	59
Total	81	59	140

Country of qualification unknown for 5 candidates

These differences are not statistically significant ($p = 0.6$ Fisher exact probability test)

Table 12 Breakdown of written results by stated ethnicity

	Failed	Passed	Total
Non-white	57	32	89
White	19	19	38
Total	76	51	127

Ethnicity not stated by 18 candidates

These differences are not statistically significant for white/non-white
($p = 0.17$) Fisher exact probability test)

Table 13 Breakdown of written results by first language

	Failed	Passed	Total
English	40	24	64
Other	17	11	28
Total	57	35	92

*First language unknown for 53 candidates

These differences are not statistically significant
($p = 0.5$ Fisher exact probability test)

Table 14 Breakdown of results by number of attempts

Attempt	Failed	Passed	Total
1 (first)	45	50	95
2	23	6	29
3	15	4	19
4	2	0	2
Any re-attempt	40	10	50

Table 15 Comparison with the written papers from previous examinations

Examination	Candidates	Pass mark	Pass rate	Pass rate in OST
September 2008	7	63%	86%	NA
February 2009	15	59%	53%	NA
September 2009	16	61%	38%	NA
February 2010	21	65%	48%	NA
September 2010	26	65%	58%	75%
February 2011	46	65%	46%	50%
September 2011	77	59%	68%	71%
February 2012	104	58%	65%	68%
September 2012	95	57%	81%	84%
February 2013*	109	61%	85%	89%
September 2013	103	59%	93%	97%
February 2014	117	58%	90%	94%
September 2014**	136	63%	70%	71%
December 2014**	106	65%	47%	54%
June 2015**	118	65%	48%	53%
November 2015**	145	64%	41%	46%

*The written papers changed from MCQ and EMQ papers (90 questions on each) to a 180-question MCQ paper at this sitting

** The pass mark is now set at Ebel + 1 SEM

Table 16 Quality of questions

Exam	Facility				Discrimination		
	Low	Moderate	High		Negative	Poor	Good

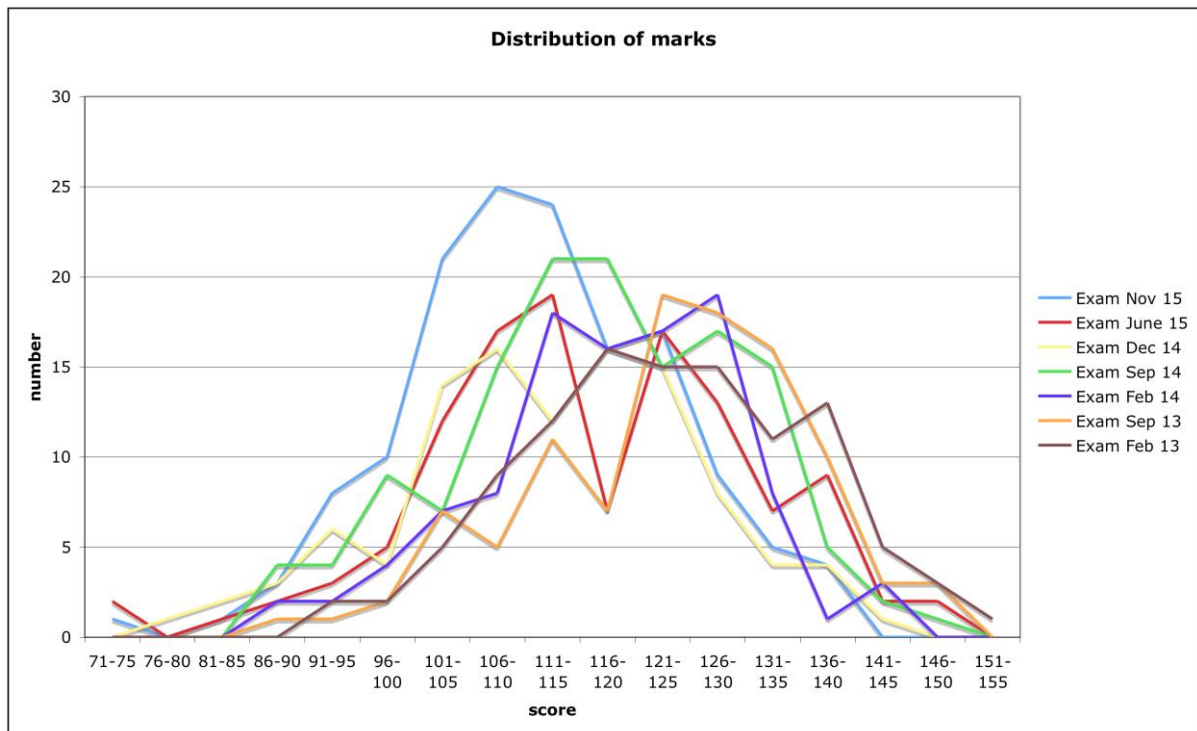
Feb 13	8	96	76		15	96	69 (38%)
Sep 13	7	83	88		12	98	68 (38%)
Feb 14	7	98	75		16	102	62 (35%)
Sep 14	5	107	67		10	107	62 (35%)
June 15	9	97	73		17	76	86 (48%)
Nov 15	7	106	65		17	102	59 (33%)

Table 17 Cumulative results by deanery (September 2010 to date)

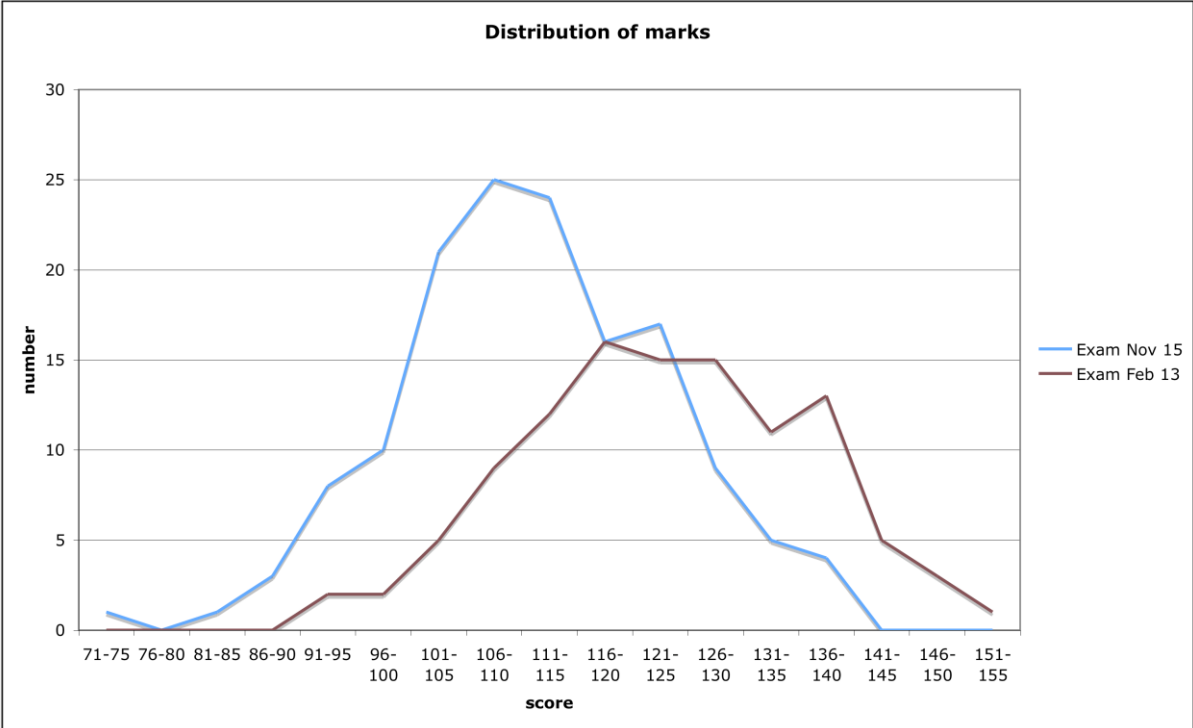
Deanery	Number of passes	Number of candidates	Pass rate %
East Scotland	6	7	86
Oxford	21	26	81
North Scotland	6	9	67
Northern	16	24	67
Northern Ireland	8	12	67
Severn	14	21	67
London KSS	112	169	66
Mersey	20	33	61
East Midlands	18	30	60
South East Scotland	9	15	60
Peninsula	11	21	52
West Scotland	11	21	52
West Midlands	29	57	51
Yorkshire	32	63	51
North Western	24	48	50
Wessex	9	20	45
East of England	14	33	42
Wales	14	33	42
TOTAL	374	642	58

Table 18 Distribution of scores for last seven written examinations

Score	Exam Nov 15	Exam June 15	Exam Dec 14	Exam Sep 14	Exam Feb 14	Exam Sep 13	Exam Feb 13
71-75	1	2	0	0	0	0	0
76-80	0	0	1	0	0	0	0
81-85	1	1	2	0	0	0	0
86-90	3	2	3	4	2	1	0
91-95	8	3	6	4	2	1	2
96-100	10	5	4	9	4	2	2
101-105	21	12	14	7	7	7	5
106-110	25	17	16	15	8	5	9
111-115	24	19	12	21	18	11	12
116-120	16	7	16	21	16	7	16
121-125	17	17	15	15	17	19	15
126-130	9	13	8	17	19	18	15
131-135	5	7	4	15	8	16	11
136-140	4	9	4	5	1	10	13
141-145	0	2	1	2	3	3	5
146-150	0	2	0	1	0	3	3
151-155	0	0	0	0	0	0	1
Mean %	63	65	65	63	67	69	69
Minimum %	42	41	46	41	49	51	53
Maximum %	78	83	82	79	81	84	84



Comparison between February 2013 and November 2015



Appendix 1 Hofstee pass mark

As a comparison to the pass mark identified using the Ebel method, the pass mark identified using the Hofstee method illustrated below:

Maximum fail rate	50%
(Minimum pass rate	(50%)
Minimum fail rate	20%
(Maximum pass rate	(80%)

Maximum pass mark	65%
Minimum pass mark	50%

(These values have been identified by the author and do not necessarily represent the views of the Part 2 sub-committee)

Hofstee pass mark	106/178 (59.5%)
Pass rate with Hofstee pass mark	100/145 (69%)

This pass mark is lower than the pass mark identified using the Ebel method + 1 SEM (64%).

