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FROM THE EXAMINATIONS DEPARTMENT

Public Report on the Part 2 FRCOphth Written Examination
September 2012

Contents:

Public report on the Part 2 FRCOphth examination

The written papers of the ninth sitting of the Part 2 FRCOphth examination were held on Monday 10 September 2012.

The candidates

95 candidates presented themselves for the examination.

The written papers

The written papers consisted of a 2-hour, 90 question single best answer from 4 MCQ paper and a 45 stem, 90-question EMQ paper lasting 3 hours. Candidates must pass the written papers to be allowed to sit the clinical part of the examination. To pass, candidates must gain a total score from both papers that equals or exceeds the combined marks from the Ebel standard setting process. They must also gain at least the pass mark minus 1 SEM in each paper.

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. No questions were removed from the examination papers as a result of this review.

The Part 2 FRCOphth Sub-Committee reviewed all of the questions with negative 33% item discrimination and low facility.

The MCQ paper

Table 1   Content (Blueprint)

		Feb 2011	Sept 2011	Feb 2012	Sept 2012
Basic science		16	21	15	16
	Anatomy & embryology	4	3	2	2
	Microbiology	3	3	3	3
	Optics	2	2	2	2
	Genetics	2	6	2	2
	Pathology	5	5	4	4
	Physiology	0	2	2	3
Clinical ophthalmology		32	29	35	35
	Cataract	3	2	3	5
	Neurology & pupils	4	5	5	4
	Glaucoma	3	1	4	3
	Strabismus	3	2	2	2
	Paediatrics	2	5	3	3
	Vitreo-retinal	4	1	2	2
	Medical retina & uveitis	4	3	6	7
	Oculoplastics and orbit	3	3	4	4
	Cornea & external eye	4	4	4	4
	Oncology	2	3	1	0
	Trauma	0	0	1	1
Management & therapeutics	Pharmacology & therapeutics	8	6	6	7
Investigations		17	18	19	18
Miscellaneous		16	15	15	14
	EBM and research	7	7	5	7
	Medicolegal/Ethics	3	2	3	4
	Health economics	1	1	1	1
	General medicine	4	4	4	0
	Guidelines	0	0	0	2
Total		89	89	90	90

MCQ paper statistics:

Mean score:	59/90 (66%)
Median score:	60/90
Standard deviation:	7.14 (7.94%)
Candidates:	95
KR20: (measurement of reliability)	0.7
Standard error of measurement (SEM):	4.0
Range of marks:	38 to 74 (42% to 82%)
Pass mark derived from Standard Setting:	50/90 (55%)
Pass mark – 1 SEM	46/90
Pass rate:	87/95 (92%)

Table 2   **Distribution of scores:**

Score	Distribution	Total
31-35		
36-40	//	2
41-45	///	3
46-50	//// /	6
51-55	//// //// ///	13
56-60	//// //// //// //// //// ////	29
61-65	//// //// //// //// //// //	27
66-70	//// //// //	12
71-75	///	3
TOTAL		95

Analysis of questions

The Speedwell data allows us to identify easy, moderate and difficult questions, and those, which are good, poor or perverse (negative) discriminators. Ideally all questions should be moderate and good.

Table 3

	Difficult (<25 correct)	Moderate (25-74) Correct)	Easy (>75 correct)	Total
Negative discrimination	0	6	1	7
Poor discrimination (0-0.19)	3	21	29	53
Good discrimination (0.2-0.5)	1	18	11	30
Total	4	45	41	90

Standard setting for MCQ paper (Ebel method)

Table 4: Classification of the questions:

	Difficult	Moderate	Easy	
Essential	1	8	16	25
Important	4	19	20	43
Supplementary	4	6	12	22
Total	9	33	48	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 6: Weighted score

	Difficult	Moderate	Easy	
Essential	0.6	5.6	12.8	19
Important	2	10.45	12	24.45
Supplementary	1	1.8	3.6	6.4
Total	3.6	17.85	28.4	49.85

MCQ pass mark: 50/90 (55%)

Comparison of pass marks and passes rates for last 7 MCQ papers

Table 7

	Sept 2009	Feb 2010	Sept 2010	Feb 2011	Sept 2011	Feb 2012	Sept 2012
Candidates	16	21	26	46	77	104	95
Mean score	60%	61%	63%	65%	65%	59%	59%
Reliability (KR 20)	0.8	0.8	0.8	0.7	0.7	0.7	0.7
SEM	4.0	3.9	3.9	4.0	3.8	4.2	4.0
Standard setting							
Pass mark	64%	66%	65%	65%	58%	58%	55%
Modified pass mark	60%	61%	NA	NA	NA	NA	NA
33% discrimination							
Negative	12	8	12	15	4	4	7
Poor	31	26	35	37	54	49	53
Good	47	56	43	37	31	37	30
Facility							
Difficult (<25%)	13	14	6	5	6	10	4
Moderate	42	43	46	51	43	54	45
Easy (>75%)	35	33	38	33	40	26	41
Pass rate	50%	52%	50%	54%	81%	61%	92%

The EMQ paper

Content (Blueprint)

The subjects that were assessed in the EMQ paper are summarised below:

Table 8

		Feb 2011	Sept 2011	Feb 2012	Sept 2012
Clinical ophthalmology		51	42	50	42
	Uveitis	6	2	*6*	6
	Paediatrics	4	4	*4*	4
	Vitreo-retinal	6	6	*2*	0
	Medical retina	8	4	*8*	8
	Strabismus	4	4	6	2
	Oculoplastics and orbit	4	4	*4*	4
	Cornea/external eye	7	8	*8*	6
	Trauma	4	4	*4*	4
	Cataract/lens	4	2	*4*	4
	Glaucoma	4	4	*4*	4
Neurology and medicine		12	14	16	16
	Neurology	10	12	*12*	12
	Medicine	2	2	4	4
Basic sciences		6	8	8	8
	Pathology/genetics	4	6	*4*	4
	Optics/refraction	2	2	2	2
	Anatomy/physiology	0	0	2	2
Pharmacology and therapeutics	Pharmacology	11	14	10	14
Investigations		4	8	2	8
Miscellany	Research & statistics	4	4	4	2
Total		88	90	90	90

EMQ paper statistics:

Mean score:	56/90 (63%)
Median score:	58/90 (64%)
Standard deviation:	8.12 (9.02%)
Candidates:	95
KR20: (measurement of reliability)	0.8
Standard error of measurement (SEM):	4.0
Range of marks:	27 to 73 (30% to 81%)
Pass mark derived from Standard Setting:	53/90 (59%)
Pass mark – 1 SEM	49/90 (54%)
Pass rate:	70/95 (74%)

Distribution of scores:
Table 9

Score	Distribution	Number
26-30	/	1
31-35		0
36-40	//	2
41-45	////	4
46-50	//// //// ////	14
51-55	///// //// //// ///	18
56-60	//// //// //// //// //	22
61-65	//// //// //// //// ////	25
66-70	//// /	6
71-75	///	3
TOTAL		95

Analysis of questions

Speedwell data allows us to identify easy, moderate and difficult questions, and those, which are good, poor or perverse (negative) discriminators. Ideally all questions should be moderate and good.

Table 10

	Difficult (<26 correct)	Moderate (25-74) Correct)	Easy (>75 correct)	Total
Negative discrimination	1	4	0	5
Poor discrimination (0-0.19)	2	19	24	45
Good discrimination (0.2-0.5)	1	33	6	40
Total	4	56	30	90

Standard setting for EMQ paper (Ebel method)

Table 11: Classification of the questions:

	Difficult	Moderate	Easy	
Essential	1	16	22	39
Important	6	16	12	34
Supplementary	2	7	8	17
Total	9	39	42	90

Table 12: 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 13: Weighted score

	Difficult	Moderate	Easy	
Essential	0.6	11.2	17.6	29.4
Important	3	8.8	7.2	19
Supplementary	0.5	2.1	2.4	5
Total	4.1	22.1	27.2	53.4

EMQ pass mark: 53/90 (59%)

Comparison of pass marks and passes rates for last 7 EMQ papers

Table 14

	Sept 2009	Feb 2010	Sept 2010	Feb 2011	Sept 2011	Feb 2012	Sept 2012
Candidates	16	21	26	46	77	104	95
Mean score	61%	59%	64%	61%	59%	61%	63%
Reliability (KR 20)	0.8	0.9	0.8	0.7	0.7	0.7	0.8
SEM	3.9	4.0	3.9	3.9	3.9	3.9	4.0
Standard setting							
Pass mark	67%	66%	64%	65%	59%	58%	59%
Modified pass mark	62%	61%	NA*	NA	NA	NA	NA
33% discrimination							
Negative	8	6	7	9	6	4	5
Poor	27	34	35	32	53	47	45
Good	55	50	48	47	31	39	40
Facility							
Difficult (<25%)	19	10	7	10	12	12	4
Moderate	43	49	45	47	47	43	56
Easy (>75%)	28	31	38	31	31	35	30
Pass rate	31%	48%	54%	43%	49%	68%	74%

Overall results from the written papers

To pass the Part 2 FRCOphth written examination candidates are required to:

1. *Obtain a combined mark from both papers that equals or exceeds the combined pass marks obtained by the standard setting exercise explained above.*

2. *Obtain a mark in both papers that equals or exceeds the pass mark minus 1 standard error of measurement for each paper.*

A candidate is therefore allowed to compensate a poor performance in one paper by a very good performance in the other paper. They cannot compensate for an extremely poor performance in one paper whatever the combined mark.

The minimum mark required in order to meet standard 1 above for this examination was **103/180 (57%).** The minimum mark required in each paper (to meet standard 2 above) was 46/90 in the MCQ paper and 49/90 in the EMQ paper.

80 candidates gained a total mark that met standard 1 above. Three candidates failed to achieve standard 2 in the EMQ paper.

77 candidates (81%) passed the written examination and were invited to sit the oral examination.
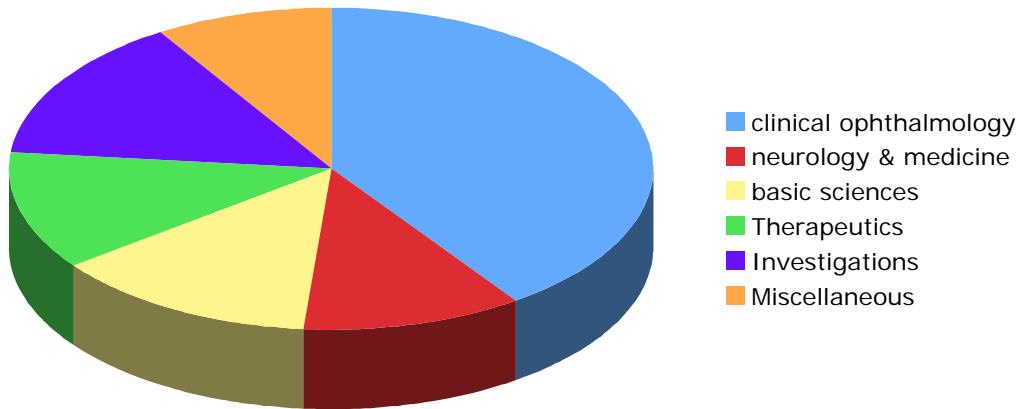
Table 15   Distribution of marks:

Distribution		Mark
61-70	/	1
71-80		0
81-90	////	4
91-100	///// ///	8
101-110	///// ///// ///// /	16
111-120	///// ///// ///// ///// ///// /	26
121-130	///// ///// ///// ///// ///// ////	29
131-140	///// ///	8
141-150	///	3
Total		

Correlation between MCQ and EMQ papers = 0.71

Table 16   Combined blueprint from both papers

Theme	Topic	Feb 2011	Sept 2011	Feb 2012	Sept 2012
Clinical ophthalmology		79	66	80	72
	Retina and uveitis	18	9	20	21
	Paediatrics and strabismus	13	15	15	11
	Vitreo-retinal	10	7	4	2
	Oculoplastics and orbit	7	7	8	8
	Cornea/external eye	11	12	12	10
	Trauma	4	4	5	4
	Cataract/lens	7	4	7	9
	Glaucoma	7	5	8	7
	Oncology	2	3	1	0
Neurology & medicine		17	19	23	20
	Neurology	14	17	17	16
	Medicine	3	2	6	4
Basic sciences		22	29	23	24
	Pathology/genetics	14	20	13	13
	Optics/refraction	4	4	4	4
	Anatomy/physiology	4	5	6	7
Therapeutics	Therapeutics	19	20	16	21
Investigations	Ophthalmic & Neuro-imaging	21	26	21	26
Miscellaneous		19	19	17	16
	Statistics, research, epidemiology	11	11	9	9
	Economics, ethics, law, guides	8	8	8	7
Total		177	179	180	180

written paper blueprint

Legend:
- clinical ophthalmology
- neurology & medicine
- basic sciences
- Therapeutics
- Investigations
- Miscellaneous

Breakdown of Written Results

Table 17   Breakdown of written results by training

	Failed	Passed	Total
In OST	11	59	70
Not in OST	7	18	25
Total	18	77	95

These differences are not statistically significant (p= 0.29)

Table 18   Breakdown of written results by stage of training

	Failed	Passed	Total
ST5	3	11 (79%)	14
ST6	6	24 (80%)	30
ST7	2	22 (92%)	24
	11	57*	68

* Stage of training unknown for 2 candidates

Table 19   Breakdown of results by deanery

	Passed	Failed	Total	Pass rate
East Midlands (North)	1	1	2	50
East of England	0	0	0	0
London	15	0	15	100
Mersey	1	2	3	33
North Western	8	0	8	100
Northern	3	1	4	75
N Ireland	3	0	3	100
Oxford	4	0	4	100
Peninsula	2	1	3	67
Scotland North	2	0	2	100
Scotland SE	2	0	2	100
Scotland West	2	1	3	67
Severn	2	0	2	100
Wales	3	3	6	50
Wessex	1	0	1	100
West Midlands	3	1	4	75
Yorkshire	7	1	8	88
TOTAL	59	11	70	84%

Table 20   Breakdown of written results by gender

	Failed	Passed	Total
Female	4	20	24
Male	14	57	71
Total	18	77	95

These differences are not statistically significant (p=1)

Table 21   Breakdown of written results by country of qualification

	Failed	Passed	Total
UK	11	42	53
Outside UK (Inc Republic of Ireland)	7	35	42
Total	18	77	95

These differences are not statistically significant (p=0.87)

Table 22   Breakdown of written results by stated ethnicity

	Failed	Passed	Total
Asian	7	33	40
Black	1	4	5
Chinese	3	5	8
Mixed/Other	2	7	9
White British	2	12	14
White other	1	12	13
Unknown	2	4	6
Total	18	77	95
Non-white	13	49	62
White	3	24	27

These differences are not statistically significant for white/non-white (p=0.37)

Table 23   Breakdown of written results by first language

	Failed	Passed	Total
English	10	36	46
Other	2	6	8
Total	12	42	54

*First language unknown for 41 candidates
These differences are not statistically significant (p=1)

Table 24   Breakdown of results by number of attempts

Attempt	Failed	Passed	Total	Pass rate
1 (first)	14	29	43	67
2	3	29	32	91
3	0	13	13	100
4	0	4	4	100
5	1	2	3	67
Any re-attempt	4	48	52	92

Comparison with the written papers from previous examinations

Table 25

Examination	Candidates	Pass mark	Pass rate
September 2008	7	63%	86%
February 2009	15	59%	53%
September 2009	16	61%	38%
February 2010	21	65%	48%
September 2010	26	65%	58%
February 2011	46	65%	46%
September 2011	77	59%	68%
February 2012	104	58%	65%
September 2012	95	57%	81%

Comments

This will be the last Part 2 FRCOphth written examination that consists of two multiple-choice papers in different styles (90 single best answer from 4 options and 90 extended matching questions). The written paper in 2013 will consist of 180 multiple-choice questions in single best answer format.

The pass rate for the examination is the highest to date (81%). The pass rate in the MCQ paper was very high at 92%, with the lowest pass mark since the examination was introduced. Although the increase in the pass rate for the EMQ paper was not as great, it was also the highest since the first sitting. The combined pass mark from both papers has been gradually decreasing.

The pass rate for trainees in ST7 was 92%.

The high pass rate for this examination may be explained by a reduction in the standards expected, a welcome improvement in how candidates prepare for the examination, or a combination of both. The performance of the candidates in the oral examination will provide very useful information in this regard.

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25 October 2012