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FROM THE EXAMINATIONS DEPARTMENT

Final Report October 2010 Part 1 FRCOphth Examination

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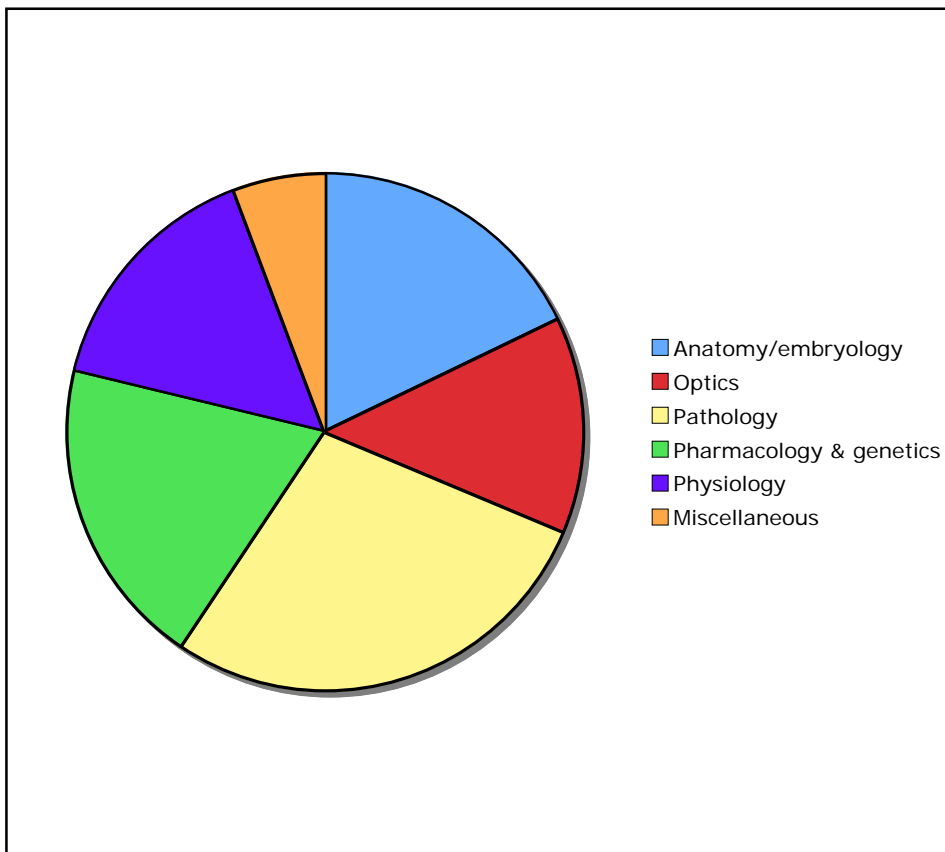
The thirteenth Part 1 FRCOphth examination took place on 4th October 2010. 89 candidates sat the examination, of whom 34 fulfilled the criteria required to pass the examination overall.

MCQ examination

Content

Topic	Oct 2009	Jan 2010	May 2010	Oct 2010	Blueprint
Anatomy/embryology	18	19	22	21	24
Optics	14	16	16	16	24
Pathology	29	36	23	33	24
Pharmacology & genetics	22	21	22	23	18
Physiology	26	18	27	18	24
Miscellaneous	11	10	10	7	6
Total	120	120	120	118*	120

* 2 questions were withdrawn from the paper



MCQ paper statistics

Mean score:	67
Median score:	67
Standard deviation:	11.32
Candidates:	89
KR20: (measurement of reliability)	0.818
Standard error of measurement (SEM):	4.83
Range of marks:	33-97
Pass mark derived from Standard Setting:	72/118
Pass mark – 1 SEM	67
Pass rate:	29/89 (33%)

Distribution of results

Range of scores	Distribution	Number
1-30		0
31-40	/	1
41-50	////	5
51-60	//// //	15
61-70	//// // // // // // // //	33
71-80	//// // // // // // // /	26
81-90	//// //	8
91-100	/	1
101-120		0
Total		89

Standard setting

The pass mark for the paper was agreed using the Ebel method.

The examiners agreed the distribution of the questions in each category:

	Difficult	Moderate	Easy	Total
Essential	0	15	35	50
Important	0	21	35	56
Supplementary	1	8	3	12
Total	1	44	73	118

Results from the examination show the following distribution of questions.

	Difficult	Moderate	Easy	Total
Total	10	86	22	118

The Part 1 FRCOphth Sub-Committee considered the success of a minimally competent candidate in each category as below:

	Difficult	Moderate	Easy
Essential	0.475	0.625	0.775
Important	0.4	0.5	0.61
Supplementary	0.275	0.3	0.45

Weighted marks

	Difficult	Moderate	Easy	Total
Essential	0.0	9.4	27.1	36.5
Important	0.0	10.5	21.4	31.9
Supplementary	0.3	2.4	1.4	4.0
Total	0.3	22.3	49.8	72.4

The pass mark = 72/118

Comparison of pass marks and pass rates for last 5 MCQ papers

	Oct 2008	Jan 09	July 09	Oct 09	Jan 10	May 10	Oct 10
Candidates	88	79	49	101	50	79	89
Mean score	69 (58%)	67 (56%)	71 (59%)	67 (56%)	63 (52.6%)	61 (50.6%)	67
Reliability (KR 20)	0.881	0.871	0.851	0.861	0.794	0.848	0.818
SEM	4.82	4.91	4.67	4.87	4.94	4.89	4.83
Standard setting	Ebel	Ebel	Ebel	Ebel	Ebel	Ebel	Ebel
Pass mark	74 (62%)	73 (61%)	76 (63%)	75 (62%)	76 (63%)	72 (60%)	72
Modified pass mark	70 (58%)	68 (57%)	71 (59%)	70 (58%)	71 (59%)	67 (56%)	NA*
33% discrimination							
Negative	11	12	10	10	15	12	17
Poor	45	38	49	51	58	52	54
Good	28	41	44	40	31	38	29
Excellent	35	29	17	19	16	18	18
Facility							
Difficult (<25%)	8	6	8	8	20	15	10
Moderate	88	90	69	85	86	84	86
Easy (>75%)	23	24	43	27	14	21	22
Pass rate	45 (51%)	34 (43%)	21 (43%)	25 (25%)	15 (30%)	28 (35%)	29 (33%)

* The pass mark is no longer reduced by 1 SEM.

The CRQ paper

The examination on 4th October covered the following areas:

Question	Subject	Topic	Sub-sections	Data provided/comment
1	Anatomy	Neuroanatomy	3	3 drawings to label
2	Investigations	Trauma	4	Blood results
3	Microbiology	Keratitis	4	Culture plate
4	Anatomy	Skull	2	2 drawings to label
5	Optics	Prisms	4	Ray diagram to draw
6	Investigations	OCT	5	OCT image
7	Optics	Lasers	4	Diagram to draw
8	Investigations	Orthoptics	5	Lees Screen and Hess chart
9	Investigations	Visual function	7	Pelli Robson and dark adaptation images
10	Investigations	Visual fields	3	Humphrey fields
11	Investigations	Retinal imaging	6	Angiogram
12	Investigations	Topography	5	Topography

Statistics

Mean score:	62.7
Median score:	67
Standard deviation:	16.03
Range of scores:	9 to 90
Reliability: Cronbach alpha	0.856
Standard error of measurement:	6.08
Pass mark derived from Standard Setting:	65/120
Pass mark – 1 SEM	59
Pass rate	50/89 (56%)

Distribution of scores

Range of marks	Distribution	Number
< 20	/	1
21-30	////	4
31-40	///// //	7
41-50	////	4
51-60	///// ///// ////	14
61-70	///// ///// ///// ///// ///// //	28
71-80	///// ///// ///// ///// /////	24
81-90	///// //	7
91-100		0
101-110		0
Total		89

Candidate performance was variable for each question, with mean, median, modal, minimum and maximum scores (with standard deviations) of:

Q	Subject	Mean	Median	Mode	SD	Min	Max
1	Anatomy	3.5	3	2	2.1	0	9
2	Investigations	6.1	6	7	2.2	1	10
3	Microbiology	6.5	7	8	1.7	2	10
4	Anatomy	5.9	6	8	2.4	0	10
5	Optics	5.1	5	7	2.3	0	9
6	Investigations	6.6	7	7	2	0	10
7	Optics	4.8	5	6	2.5	0	10
8	Investigations	4.5	5	5	2.1	0	9
9	Investigations	4.2	4	4	2.2	0	9
10	Investigations	5	5	4	2.1	0	9
11	Investigations	5.5	6	8	2.3	0	10
12	Investigations	5	5	5	1.9	0	8

Comparison to previous years

	Oct 08	Jan 09	July 09	Oct 09	Jan 10	May 10	Oct 10
Mean score	60%	59%	58%	56%	61%	53%	52%
Median score	64%	62%	61%	58%	63%	53%	56%
Standard deviation	16%	11.5%	13%	16%	16%	13%	13%
Reliability	0.85	0.78	0.89	0.88	0.82	0.843	0.856
SEM	6.7	6	5.3	6.5	6.6	6.5	6
Pass mark	57%	57%	58%	56%	58%	57%	54%
Modified pass mark	51%	52%	54%	51%	53%	52%	NA
Correlation with MCQ	0.74	0.76	0.80	0.75	0.79	0.72	0.8

Standard setting

The borderline candidate method was used to identify the pass mark for the CRQ. The examiners who marked the CRQ paper were asked to allocate a mark according to the marking scheme provided and, in addition, class the candidate's performance as a pass, fail or borderline. The sum of each median borderline mark was used to produce the pass mark:

	Topic	No. Pass	No. Fail	No. Borderline	Median mark	Examiner
1	Anatomy	23	54	12	4	SS
2	Investigations	37	26	26	6	DOD
3	Microbiology	56	8	25	5	DOD
4	Anatomy	34	33	22	6	MEN
5	Optics	33	39	17	6	NW
6	Investigations	53	17	19	6	FA
7	Optics	26	43	20	6	MEN/SS
8	Investigations	19	37	33	5	MEN
9	Investigations	25	51	13	5	FA
10	Investigations	33	43	13	5	SS
11	Investigations	34	41	14	6	CD
12	Investigations	27	39	23	5	NW
					65	

Pass mark = 65

Questions 3 and 6, were 'easy' or well prepared for with >50% of candidates passing
Questions 1 and 9 were 'difficult' or ill prepared for with >50% of candidates failing.

Overall Results

To pass the Part 1 FRCOphth 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 137 (58%). The minimum mark required in each paper (to meet standard 2 above) was 67 in the MCQ paper and 59 in the CRQ paper.

37 candidates gained a total mark that met standard 1 above but four candidates failed to obtain the minimum mark required in the MCQ or CRQ papers and therefore failed the examination overall.

34 candidates passed the examination.

Distribution of scores

Range of marks	Distribution	Number
<60	//	2
61-70	/	1
71-80	//	2
81-90	///	3
91-100	////	5
101-110	//	2
111-120	//// //	12
121-130	//// //	12
131-140	//// // / //	18
141-150	//// // // //	17
151-160	//// /	6
161-170	//// //	7
171-180	/	1
181-190	/	1
191-200		0
Total		32

/ candidate scored 136

/ candidate scored 137

Mean 130

Median 134

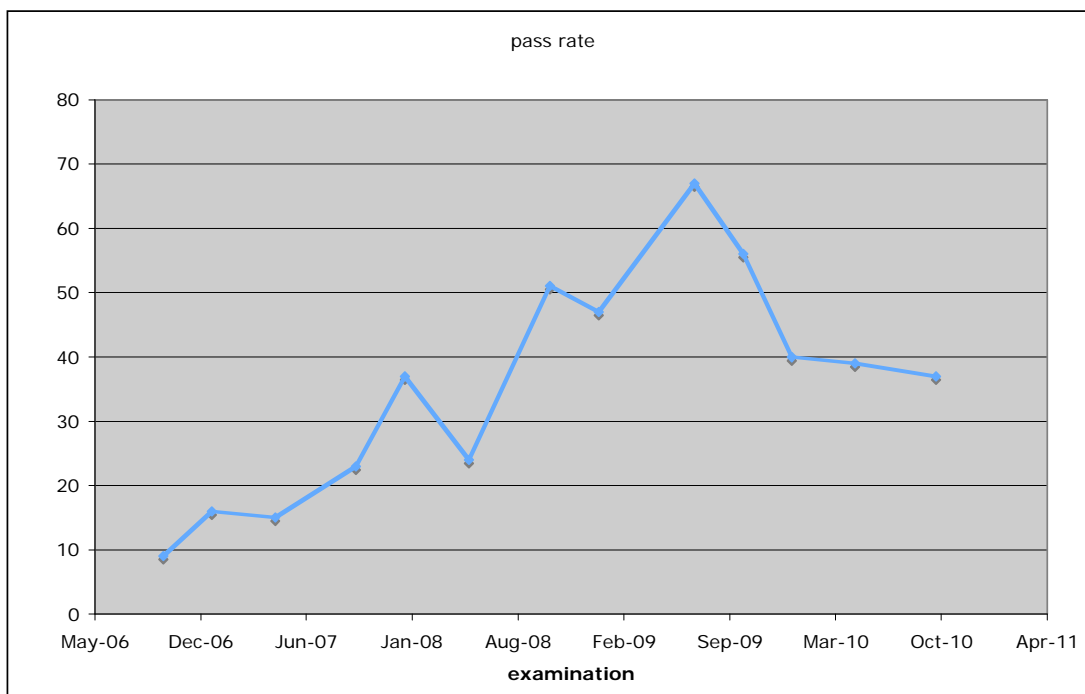
Mode 135

Range 50 to 186

Hofstee pass mark 140/238 (59%)

Comparison to previous years:

Examination	Candidates	Passed examination	% passed	MCQ pass mark %	CRQ pass mark %
Oct 2006	33	3	9	58	62
Jan 2007	24	4	16	60	43
May 2007	32	5	15	50	64
Oct 2007	56	13	23	51	59
Jan 2008	73	27	37	56	55
May 2008	66	16	24	57	48
Oct 2008	88	45	51	58	51
Jan 2009	79	37	47	61	57
July 2009	49	33	67	63	58
Oct 2009	101	56	56	62	56
Jan 2010	50	20	40	63	58
May 2010	79	31	39	60	57
Oct 2010	89	34	38	61	54



Breakdown of results by training

	Failed	Passed	Total
In OST	19	10	29
Not in OST	36	24	60
Total	55	34	89

These differences are not statistically significant $p=0.5598$

Breakdown of results by deanery

Deanery	Failed	Passed	Total
East Midlands	1	1	2
East Scotland	0	1	1
East of England	1	1	2
London	5	3	8
Mersey	1	0	1
Northern	1	0	1
N Ireland	1	0	1
Oxford	1	0	1
Peninsula	0	1	1
West Midlands	2	0	2
West Scotland	1	1	2
Wales	1	1	2
Wessex	4	0	4
Yorkshire	0	1	1
Total	19	10	29

Breakdown of results by stage of training

Stage (includes FTSTA)	Failed	Passed	Total
ST1	5	1	6
ST2	6	6	12
ST3	2	0	2
ST4	1	0	1
Unknown	5	3	8
Total	20	9	29

Breakdown of results by gender

	Failed	Passed	Total
Female	23	12	35
Male	32	22	54
Total	55	34	89

These differences are not statistically significant $p=0.5071$

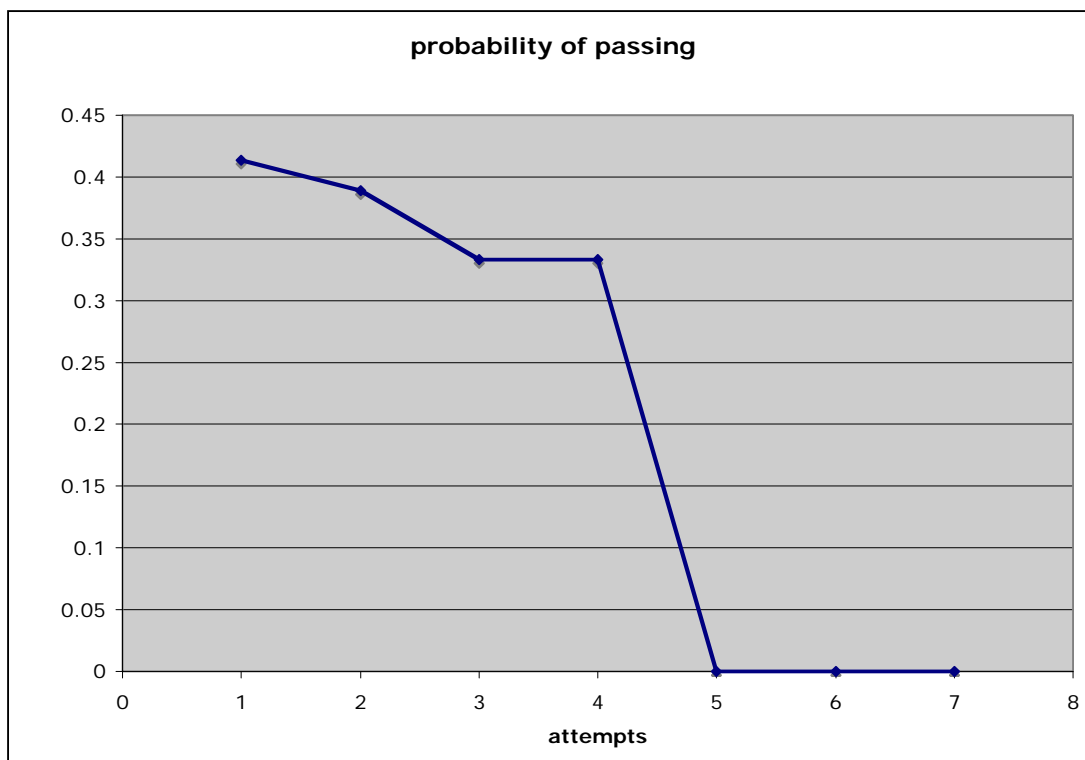
Breakdown of results by country of qualification

	Failed	Passed	Total
UK	28	19	47
Outside UK	27	15	42
Total	55	34	89

These differences are not statistically significant $p=1$

Breakdown of results by number of previous attempts

Attempts	Failed	Passed	Total
1 (First)	34	24	58
2	11	7	18
3	4	2	6
4	2	1	3
5	3	0	3
6	0	0	0
7	1	0	1
Any resit	22	9	31
Total	56	33	89



Summary

The Part 1 FRCOphth examination is a significant challenge to candidates. The examination is reliable but the number of negative or poorly discriminating questions appears to be constant. Although it is encouraging that the impact of the GMC criterion for approval of the examinations (that the pass mark should be lowered by 1 SEM) has not reduced the pass rate, it is still low. If the SEM rule had still been in place, the pass rate would have been 59/89 (66%).

The CRQ reliability has improved. The pass mark was the lowest so far. The correlation between the MCQ and CRQ is still higher than ideal.

The range of marks achieved by the candidates is very wide (21% to 78%). Candidates still attempt the examination without adequate preparation. The probability of passing the examination after four attempts is negligible.

The Hofstee pass mark was similar to the Ebel/BCM pass mark. This suggests that the examination meets the expectations of the Part 1 FRCOphth Sub-Committee.

The pass rate in OST trainees is disappointing and is a significant risk to the credibility of the examination. As a pass in the examination is a requirement to enter ST3, candidates will be issued with ARCP 3 outcomes. If this occurs in large numbers Postgraduate Deans will rightly question the validity of the examination.

The examination still includes a disproportionately large number of molecular genetics and immunology questions.

One candidate expressed concerns about the quality of the images in the question book and the over-representation of some topics in the MCQ paper.

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