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FROM THE EXAMINATIONS DEPARTMENT

Final Report May 2012 Part 1 FRCOphth Examination

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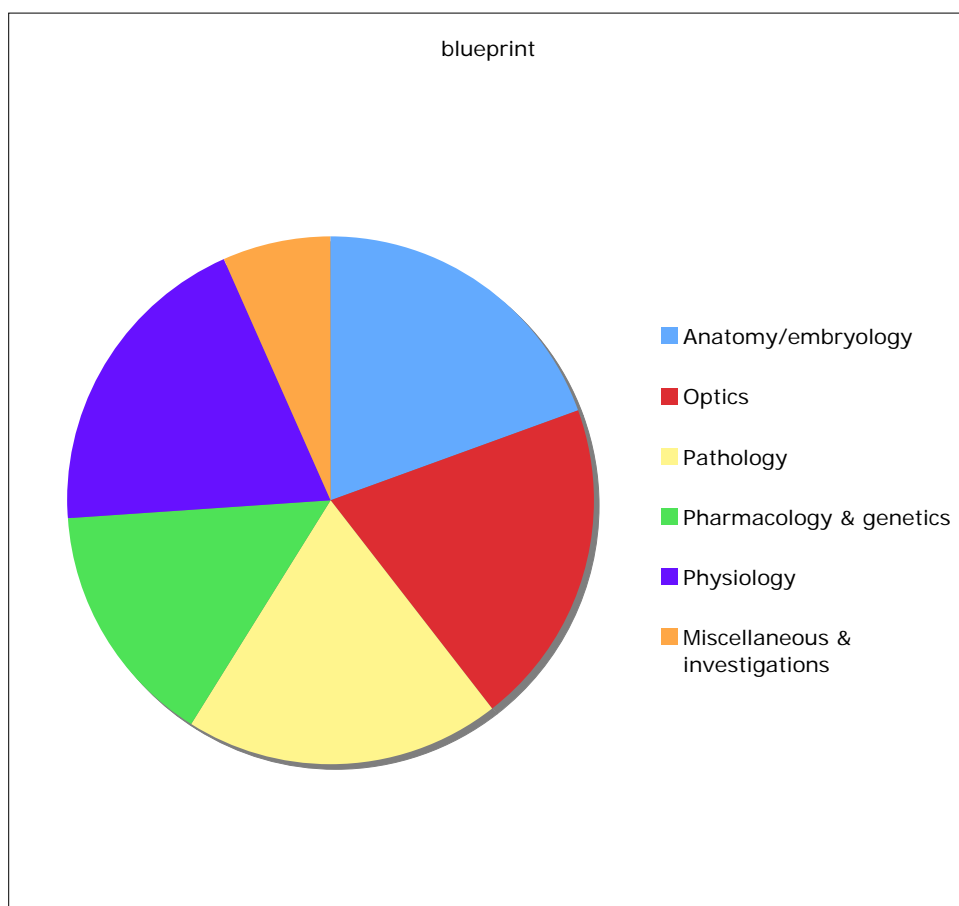
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The eighteenth Part 1 FRCOphth examination took place on 14th May 2012. 104 candidates sat the examination, of whom 53 (51%) fulfilled the criteria required to pass the examination overall.

MCQ examination

Content

Topic	May 2010	Oct 2010	Jan 2011	May 2011	Oct 2011	Jan 2012	May 2012
Anatomy/embryology	22	21	23	25	23	25	23
Optics	16	16	24	25	25	25	24
Pathology	23	33	24	26	23	25	23
Pharmacology & genetics	22	23	18	15	18	17	18
Physiology	27	18	21	22	24	20	23
Miscellaneous & investigations	10	7	7	7	7	8	8
Total	120	118	116	120	120	120	119



MCQ paper statistics

Mean score:	66/119	(56%)
Median score:	66/119	(55%)
Standard deviation:	13.6	(11%)
Candidates:	104	
KR20: (measurement of reliability)	0.87	
Standard error of measurement (SEM):	4.8	
Range of marks:	32 - 96	(27%-81%)
Pass mark derived from Standard Setting:	67/119	(56%)
Pass mark – 1 SEM	62/119	(52%)
Pass rate:	51/104	(49%)

Distribution of scores

Range of scores	Distribution	Number
1-30		0
31-40	//	2
41-50	//// //	12
51-60	//// // // //	22
61-70	//// // // // // // // //	33
71-80	//// // // // //	18
81-90	//// // // /	11
91-100	//// /	6
101-120		0
Total		104

Standard setting

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

	Difficult	Moderate	Easy	Total
Essential	1	18	27	46
Important	3	37	20	60
Supplementary	1	11	1	13
Total	5	66	48	119

One question was removed from the examination paper after review by the Senior Examiner.

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

	Difficult	Moderate	Easy
Essential	0.55	0.65	0.75
Important	0.45	0.5	0.55
Supplementary	0.25	0.25	0.25

	Difficult	Moderate	Easy	Total
Essential	0.55	11.7	20.25	32.5
Important	1.35	18.5	11	30.85
Supplementary	0.25	2.75	0.25	3.25
TOTAL	2.15	32.95	31.5	66.6

The MCQ pass mark = 67/119 (56%)

Comparison of pass marks and rates for last 7 MCQ papers

	May 10	Oct 10	Jan 11	May 11	Oct 11	Jan 12	May 12
Candidates	79	89	62	95	122	66	104
Mean score	61	67	62	64	67	64	66
Reliability (KR 20)	0.848	0.818	0.815	0.86	0.87	0.85	0.87
SEM	4.89	4.83	4.9	4.96	4.87	4.95	4.8
Standard setting	Ebel	Ebel	Ebel	Ebel	Ebel	Ebel	Ebel
Pass mark	72 (60%)	72 (61%)	69 (59%)	65 (54%)	67 (56%)	66 (57%)	67 (56%)
Modified pass mark	67 (56%)	NA*	NA*	NA*	NA*	NA*	NA*
33% discrimination							
Negative	12	17	14	9	10	6	5
Poor	52	54	53	56	44	56	54
Good	38	29	38	36	44	39	46
Excellent	18	18	11	16	22	15	14
Facility							
Difficult (<25%)	15	10	8	10	7	5	10
Moderate	84	86	93	92	91	98	85
Easy (>75%)	21	22	15	18	22	13	4
Questions	120	118	116	120	120	116	119
Pass rate	28 (35%)	29 (33%)	15 (24%)	47 (51%)	67 (55%)	22 (42%)	51 (49%)

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

The CRQ paper

The examination in May 2012 covered the following areas:

Question	Subject	Topic	Sub-sections	Data provided
1	Anatomy	Eyelid	10	Diagram of lid
2	Pathology	Keratitis	6	2 photographs
3	Pathology	Skin tumour	4	2 photographs
4	Optics	Ray diagram	3	None
5	Optics	Prism	4	None
6	Optics	Visual acuity	7	2 photographs
7*	Optics	Transposition	6	None
8	Investigations	Visual fields	5	2 photographs
9	Investigations	Angiography	4	Photograph
10	Investigations	Corneal topography	6	Photograph
11	Investigations	Neuroimaging	5	2 photographs
12	Investigations	Blood tests	4	Results

* After review an error was identified with the first part of this question (worth 2 marks), so this part of the question was discounted.

Statistics

Mean score:	69/120	(58%)
Median score:	72/120	(60%)
Standard deviation:	16.3	(14%)
Range of scores:	17 - 103	(14% - 86%)
Reliability: Cronbach alpha	0.92	
Standard error of measurement:	5	
Pass mark used to agree pass list	70/120	(58%)
Pass mark – 1 SEM	65/120	(54%)
Pass rate	53/104	(51%)

Distribution of scores

Range of marks	Distribution	Number
0-30	//	2
31-40	//// /	6
41-50	///	3
51-60	//// //// ////	15
61-70	//// //// //// //// //// //	25
71-80	//// //// //// //// //// //// ////	29
81-90	//// //// //// ////	19
91-100	///	4
101-120	/	1
Total		104

Two examiners marked each question in the CRQ papers and the average mark from each was used to produce the candidate mark. Each question has a maximum possible 10 marks. Candidate performance was variable for each question, with mean, median, minimum and maximum scores (with standard deviations) of:

Q	Subject	Mean	Median	SD	Min	Max
1	Anatomy	6	7	2.0	0	9.5
2	Pathology	4	4	3.0	0	9.5
3	Pathology	3	3	2.1	0	9
4	Optics	4	4	2.9	0	10
5	Optics	6	7	2.7	0	10
6	Optics	6	7	2.2	0	9.5
7*	Optics	6	6	2.8	0	10
8	Investigations	6	7	1.8	1	9.5
9	Investigations	6	6	1.7	1	9.5
10	Investigations	7	8	1.6	2.5	10
11	Investigations	6	7	2.1	1	10
12	Investigations	7	8	1.9	2	10

*Question 7 was marked out of 8 and then weighted so that the contribution to the final CRQ mark remained at 10/120.

Candidates performed badly in or were particularly ill prepared for questions 3 and 4.

33% Item discrimination (ID) and facility (F) for each question and examiner:

Good discrimination Poor discrimination Easy Difficult

Q	Subject	33% ID examiner B	F examiner B	33% ID examiner A	F examiner A
1	Anatomy	0.299	0.76	0.271	0.50
2	Pathology	0.386	0.50	0.329	0.40
3	Pathology	0.171	0.24	0.200	0.38
4	Optics	0.329	0.46	0.229	0.26
5	Optics	0.314	0.61	0.314	0.75
6	Optics	0.229	0.81	0.186	0.67
7	Optics	0.314	0.38	0.314	0.46
8	Investigations	0.171	0.62	0.200	0.80
9	Investigations	0.229	0.48	0.186	0.64
10	Investigations	0.257	0.63	0.157	0.81
11	Investigations	0.257	0.74	0.286	0.49
12	Investigations	0.114	0.87	0.300	0.59

Question 3 had a poor 33% item discrimination index and a low facility. Questions 8 and 9 had low 33% item discrimination index and high facility (when marked by examiner A).

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	Examiners A				Examiners B			
		No. Fail	No. Border	No. Pass	Median Border	No. Fail	No. Border	No. Pass	Median Border
1	Anatomy	38	31	35	6	9	32	63	6.5
2	Pathology	55	18	41	5	53	7	44	5
3	Pathology	71	15	18	4	78	14	12	5
4	Optics	68	21	15	6	49	14	41	5.5
5	Optics	21	27	56	6	31	33	40	6
6	Optics	36	31	37	5	17	12	75	6
7	Optics	56	10	38	6.25	53	13	38	8.75
8	Investigations	22	32	50	5	21	54	59	7
9	Investigations	33	37	34	6	47	35	22	6
10	Investigations	10	16	78	7	23	34	47	7
11	Investigations	30	30	44	6	32	23	49	6
12	Investigations	33	54	17	7	17	14	73	6

Questions 1, 5, 6, 8, 10 and 12 were 'easy' or well prepared for with >50% of candidates passing (global judgment by one examiner)
 Questions 2, 3 and 7 were 'difficult' or ill prepared for with >50% of candidates failing (global judgment by both examiners)

Comparison between examiners

Q	Subject	Mean mark examiner B	Mean mark examiner A	Mean diff	t test of difference	Correlation between marks	Correlation between global judgements
1	Anatomy	8	5	2.43	0.000	0.72	0.47
2	Pathology	4	4	0.63	0.12	0.92	0.91
3	Pathology	3	3	0.14	0.62	0.89	0.72
4	Optics	5	4	1.77	0.000	0.89	0.71
5	Optics	6	7	1.03	0.006	0.89	0.72
6	Optics	7	5	1.51	0.000	0.75	0.48
7	Optics	6	5	1.06	0.007	0.91	0.85
8	Investigations	7	6	0.86	0.001	0.83	0.60
9	Investigations	5	6	0.73	0.000	0.76	0.57
10	Investigations	7	8	0.82	0.000	0.76	0.53
11	Investigations	7	6	0.40	0.06	0.94	0.85
12	Investigations	8	7	1.31	0.000	0.89	0.67

	May 10	Oct 10	Jan 11	May 11	Oct 11	Jan 12	May 12
Mean score	53%	52%	59%	55%	57%	47%	58%
Median score	53%	56%	61%	56%	58%	48%	60%
Reliability	0.843	0.856	0.869	0.92	0.86	0.87	0.92
SEM	6.5	6	9*	6	6	5	5
Pass mark	57%	54%	58%	58%	56%	54%	58%
Modified pass mark	52%	NA*	NA*	NA*	NA*	NA*	NA*
Pass rate	56%	56%	61%	64%	59%	26%	51%
Correlation with MCQ	0.72	0.8	0.79	0.79	0.73	0.66	0.70

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

The correlation between the two parts of the examination remains at an acceptable level at 0.70.

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 136/239 (57%). The minimum mark required in each paper (to meet standard 2 above) was 62/119 in the MCQ paper and 64/120 in the CRQ paper.

55 candidates gained a total mark that met standard 1 above but 2 candidates failed to obtain the minimum mark required in the MCQ paper and therefore failed the examination overall.

53 (51%) candidates passed the examination.

Distribution of scores

Range of marks	Distribution	Number
<60		0
61-70	/	1
71-80	//	2
81-90	///	3
91-100	///	3
101-110	//// ////	10
111-120	//// //	8
121-130	//// //// //// //	17
131-140	//// // //// ////	15
141-150	//// //// //// //	17
151-160	//// //	9
161-170	//// //	8
171-180	///	4
181-190	/// /	6
191-200	/	1
Total		104

Mean 136 (57%) Median 138 (58%) Range 49-199 (21%-83%)

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
Jan 2011	62	23	37	59	58
May 2011	95	47	49	54	57
Oct 2011	122	63	52	56	56
Jan 2012	66	20	33	57	54
May 2012	104	53	51	56	58

Breakdown of results by training

	Failed	Passed	Total
In OST	15	35	50
Not in OST	36	18	54
Total	51	53	104

These differences are significant (p=0.0004)

Breakdown of results by deanery

Deanery	Failed	Passed	Total
East Midlands	0	3	3
East Scotland	0	1	1
East of England	0	1	1
London & KSS	6	8	14
Mersey	0	0	0
N Scotland	0	2	2
North Western	1	0	1
Northern	0	1	1
N Ireland	2	1	3
Oxford	0	1	1
Peninsula	0	2	2
SE Scotland	0	0	0
Severn	1	1	2
West Midlands	4	4	8
West Scotland	0	3	3
Wales	0	2	2
Wessex	1	2	3
Yorkshire	0	3	3
Total	15	35	50

Breakdown of results by stage of training

Stage (includes FTSTA)	Failed	Passed	Total
ST1	9	28	37
ST2	1	6	7
ST3	3	0	3
Unknown	2	1	3
Total in OST	15	35	50

Breakdown of results by gender

	Failed	Passed	Total
Female	31	32	63
Male	20	21	41
Total	51	53	104

These differences are not significant ($p=0.86$)

Breakdown of results by country of qualification

	Failed	Passed	Total
UK	32	36	68
Outside UK	29	17	46
Total	61	53	104

These differences are not significant ($p=0.14$)

Breakdown of results by declared ethnicity

Ethnicity	Failed	Passed	Total
White	19	18	37
Non-white	28	30	58
Unknown	4	5	9
Total	61	53	104

These differences are not statistically significant ($p=0.92$)

Breakdown of results by first language

	Failed	Passed	Total
English	24	35	58
Other	21	8	29
Unknown	6	10	16
Total	51	53	104

These differences are significant ($p=0.01$)

Breakdown of results by number of previous attempts

Attempts	Failed	Passed	Total
1 (First)	29	32	61
2	9	10	19
3	5	3	8
4	1	6	7
5	1	1	2
6	3	0	3
7	0	0	0
8	1	0	1
9	1	0	1
10	1	0	1
11	0	0	0
12	0	1	1
Any resit	22	21	44
Total	51	53	104

Summary

104 candidates presented themselves for the examination.

The pass mark and reliability in both components of the examination is similar to previous years.

Mr Michael Nelson BSc Hons FRCOphth MEd
Education Advisor

July 2012

Appendix 1 Overall results for each deanery

Result data by deanery has been available since October 2010. The summary results for each deanery are listed below:

Deanery	Number of candidates	Pass rate
East Scotland	3	100
Yorkshire	21	81
SE Scotland	9	78
N Scotland	7	71
London & KSS	47	57
Severn	9	56
East Midlands	14	50
North Western	4	50
Northern	15	47
West Scotland	13	46
Wales	13	46
Mersey	9	44
East of England	15	40
West Midlands	37	35
Wessex	32	34
N Ireland	9	33
Peninsula	11	27
Oxford	4	25
Total	272	49