

The Royal College of Ophthalmologists

17 Cornwall Terrace, London. NW1 4QW.

Telephone: 020-7935 0702, Extension 210

Facsimile: 020-7487 4674

Email: Emily.Beet@rcophth.ac.uk

Website: WWW.RCOPHTH.AC.UK

FROM THE EXAMINATIONS DEPARTMENT



PATRON HRH THE DUKE OF YORK, KCVO, ADC

Final Report May 2011 Part 1 FRCOphth Examination

Contents:

MCQ paper

Content	page 2
Statistics	page 3
Distribution of scores	
Standard setting	
Comparison to previous papers	page 4

CRQ paper

Content	page 5
Statistics	
Distribution of scores	page 6
Standard setting	page 7
Comparison to previous papers	page 8

Overall results	page 9
-----------------	--------

Comparison to previous Part 1 examinations	page 10
--	---------

Breakdown of results	page 11
----------------------	---------

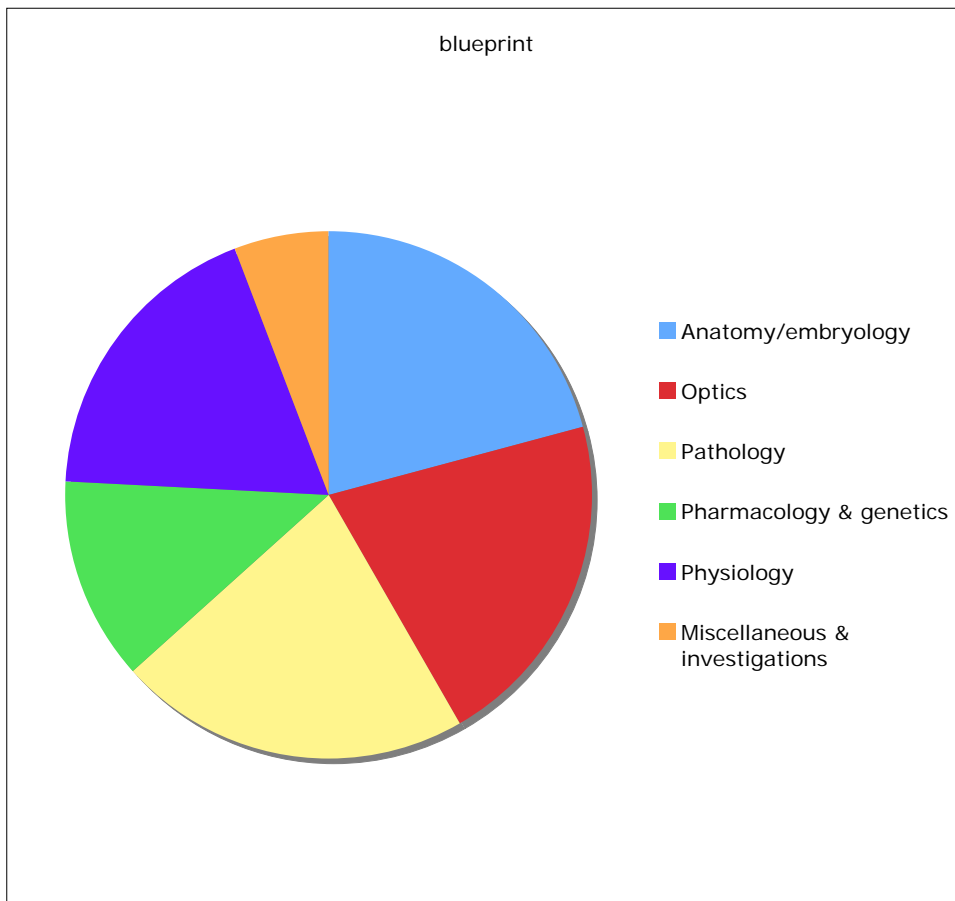
Summary	page 13
---------	---------

The fifteenth Part 1 FRCOphth examination took place on 9 May 2011. 95 candidates sat the examination, of whom 49 fulfilled the criteria required to pass the examination overall.

MCQ examination

Content

Topic	Jan 2010	May 2010	Oct 2010	Jan 2011	May 2011	Blueprint
Anatomy/embryology	19	22	21	23	25	24
Optics	16	16	16	24	25	24
Pathology	36	23	33	24	26	24
Pharmacology & genetics	21	22	23	18	15	18
Physiology	18	27	18	21	22	24
Miscellaneous & investigations	10	10	7	7	7	6
Total	120	120	118	116	120	120



MCQ paper statistics

Mean score:	64/120
Median score:	65/120
Standard deviation:	13.1
Candidates:	95
KR20: (measurement of reliability)	0.86
Standard error of measurement (SEM):	4.96
Range of marks:	33-93
Pass mark derived from Standard Setting:	65
Pass mark – 1 SEM	60
Pass rate:	49/95 (49%)

Distribution of results

Range of scores	Distribution	Number
1-30		0
31-40	////	5
41-50	//// // /	11
51-60	//// // // // //	19
61-70	//// // // // // // //	29
71-80	//// // // // // // //	22
81-90	//// /	6
91-100	///	3
101-120		0
Total		95

Standard setting

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

Three examiners classified the questions:

Examiner 1	Difficult	Moderate	Easy	Total
Essential	2	25	17	44
Important	14	26	17	57
Supplementary	7	9	3	19
Total	23	60	37	120

Examiner 2	Difficult	Moderate	Easy	Total
Essential	2	23	34	59
Important	1	14	30	45
Supplementary	3	5	8	16
Total	6	42	72	120

Examiner 3	Difficult	Moderate	Easy	Total
Essential	1	15	18	34
Important	9	37	25	71
Supplementary	3	9	3	15
Total	13	61	46	120

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

The weighted pass mark was calculated using the classification provided by the three examiners (63.5, 69.5, 63.85). The pass mark was agreed as the mean mark of the three values.

The MCQ pass mark = 65/120 (54%)

Comparison of pass marks and rates for last 7 MCQ papers

	July 09	Oct 09	Jan 10	May 10	Oct 10	Jan 11	May 11
Candidates	49	101	50	79	89	62	95
Mean score	71	67	63	61	67	62	64
Reliability (KR 20)	0.851	0.861	0.794	0.848	0.818	0.815	0.86
SEM	4.67	4.87	4.94	4.89	4.83	4.9	4.96
Standard setting	Ebel	Ebel	Ebel	Ebel	Ebel	Ebel	Ebel
Pass mark	76 (63%)	75 (62%)	76 (63%)	72 (60%)	72 (61%)	69 (59%)	65 (54%)
Modified pass mark	71 (59%)	70 (58%)	71 (59%)	67 (56%)	NA*	NA*	NA*
33% discrimination							
Negative	10	10	15	12	17	14	9
Poor	49	51	58	52	54	53	56
Good	44	40	31	38	29	38	36
Excellent	17	19	16	18	18	11	16
Facility							
Difficult (<25%)	8	8	20	15	10	8	10
Moderate	69	85	86	84	86	93	92
Easy (>75%)	43	27	14	21	22	15	18
Pass rate	21 (43%)	25 (25%)	15 (30%)	28 (35%)	29 (33%)	15 (24%)	47 (51%)

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

The CRQ paper

The examination on 9 May 2011 covered the following areas:

Question	Subject	Topic	Sub-sections	Data provided/comment
1	Anatomy	Sympathetic supply to the eye	4	Sketch
2	Pathology	Melanoma	4	Gross and microscopic photographs
3	Physiology/Cell biology	Cell junctions	5	Sketches
4	Investigations	Haematology	4	Lab results
5	Optics	Ray diagram 90d lens	4	No images
6	Optics	Ray diagram compound microscope	3	
7	Optics	Spectacle correction	6	
8	Investigations	Colour vision	6	Pseudoisochromatic plates
9	Miscellaneous	Research paper	6	Abstract
10	Investigations	Retinal imaging	6	OCT image
11	Investigations	Neuroimaging	5	Scans
12	Investigations	Retinal imaging	5	IFA

Statistics

Mean score:	67/120
Median score:	67.5/120
Standard deviation:	15.3
Range of scores:	23-93
Reliability: Cronbach alpha	0.92
Standard error of measurement:	6
Pass mark derived from Standard Setting:	69
Pass mark – 1 SEM	63
Pass rate	61/95 (64%)

Distribution of scores

Range of marks	Distribution	Number
1-30	////	4
31-40	////	4
41-50	///// ///	8
51-60	///// ///// ///	14
61-70	///// ///// ///// ///// //	28
71-80	///// ///// ///// ///// /	21
81-90	///// ///// /////	15
91-100	/	1
101-120		0
Total		95

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	Correlation between 2 markers (Mark)	Correlation between 2 markers (Global judgement)
1	Anatomy	5	5	2.1	0	10	0.85	0.78
2	Pathology	4	4	2.3	1	10	0.86	0.7
3	Physiology/Cell biology	5	5	2.5	0	10	0.91	0.83
4	Investigations	7	8	1.7	0	9	0.87	0.6
5	Optics	5	5	2.2	0	9	0.80	0.65
6	Optics	5	4	2.9	0	10	0.91	0.81
7	Optics	5	5	2.1	0	10	0.93	0.88
8	Investigations	6	7	2.1	1	10	0.84	0.67
9	Miscellaneous	3	4	1.9	0	8	0.85	0.68
10	Investigations	6	7	2.1	0	10	0.83	0.75
11	Investigations	6	7	2.2	1	10	0.90	0.86
12	Investigations	7	7	1.8	2	10	0.78	0.72

Candidates performed badly or were ill prepared for questions 2 & 9. There was good correlation between examiner marks and reasonable correlation between examiner global judgments.

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

Excellent discrimination

Poor discrimination

Easy

Difficult

Q	Subject	ID examiner B	F examiner B	ID examiner B	F examiner B
1	Anatomy	0.625	0.500	0.563	0.375
2	Pathology	0.469	0.266	0.563	0.469
3	Phys/Cell biology	0.625	0.563	0.656	0.516
4	Investigations	0.219	0.891	0.313	0.813
5	Optics	0.469	0.391	0.656	0.578
6	Optics	0.469	0.453	0.375	0.375
7	Optics	0.563	0.438	0.594	0.453
8	Investigations	0.406	0.672	0.563	0.688
9	Miscellaneous	0.313	0.250	0.313	0.313
10	Investigations	0.406	0.766	0.375	0.750
11	Investigations	0.656	0.641	0.625	0.688
12	Investigations	0.375	0.688	0.406	0.734

Questions 4 and 9 have poor 33% item discrimination indices. Question 4 has a high facility (easy) and question 9 has a low facility (difficult). All other questions performed well.

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	Correl AB	Examiners A				Examiners B			
			No. Pass	No. Fail	No. Border	Median Border	No. Pass	No. Fail	No. Border	Median Border
1	Anatomy	0.78	17	44	34	5.5	19	47	29	5
2	Anatomy	0.70	30	50	15	5	9	66	20	6
3	Pathology	0.83	36	45	14	5	42	38	15	5
4	Genetics	0.60	58	11	26	7	68	5	22	6
5	Optics	0.65	39	39	17	6	24	56	15	5
6	Optics	0.81	27	58	10	6	38	50	7	6
7	Optics	0.88	31	45	19	6	27	55	13	6
8	Invest	0.67	51	27	17	6	23	13	49	6
9	Invest	0.68	11	65	19	5	10	66	19	5
10	Invest	0.75	54	24	17	5	27	21	17	6
11	Invest	0.86	46	25	24	6	50	18	27	6
12	Invest	0.72	41	30	24	7	53	12	30	7
Pass mark						69.5	69			

Pass mark = 69/120

Questions 4, 8 & 10, were 'easy' or well prepared for with >50% of candidates passing (global judgment)

Questions 2, 6 & 9 were 'difficult' or ill prepared for with >50% of candidates failing (global judgment)

Comparison to previous years

	July 09	Oct 09	Jan 10	May 10	Oct 10	Jan 11	May 11
Mean score	58%	56%	61%	53%	52%	59%	55%
Median score	61%	58%	63%	53%	56%	61%	56%
Standard deviation	13%	16%	16%	13%	13%	10.3%	12.8%
Reliability	0.89	0.88	0.82	0.843	0.856	0.869	0.92
SEM	5.3	6.5	6.6	6.5	6	9*	6
Pass mark	58%	56%	58%	57%	54%	58%	58%
Modified pass mark	54%	51%	53%	52%	NA	NA	NA
Correlation with MCQ	0.80	0.75	0.79	0.72	0.8	0.79	0.79

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 134/240. The minimum mark required in each paper (to meet standard 2 above) was 60/120 in the MCQ paper and 63/120 in the CRQ paper.

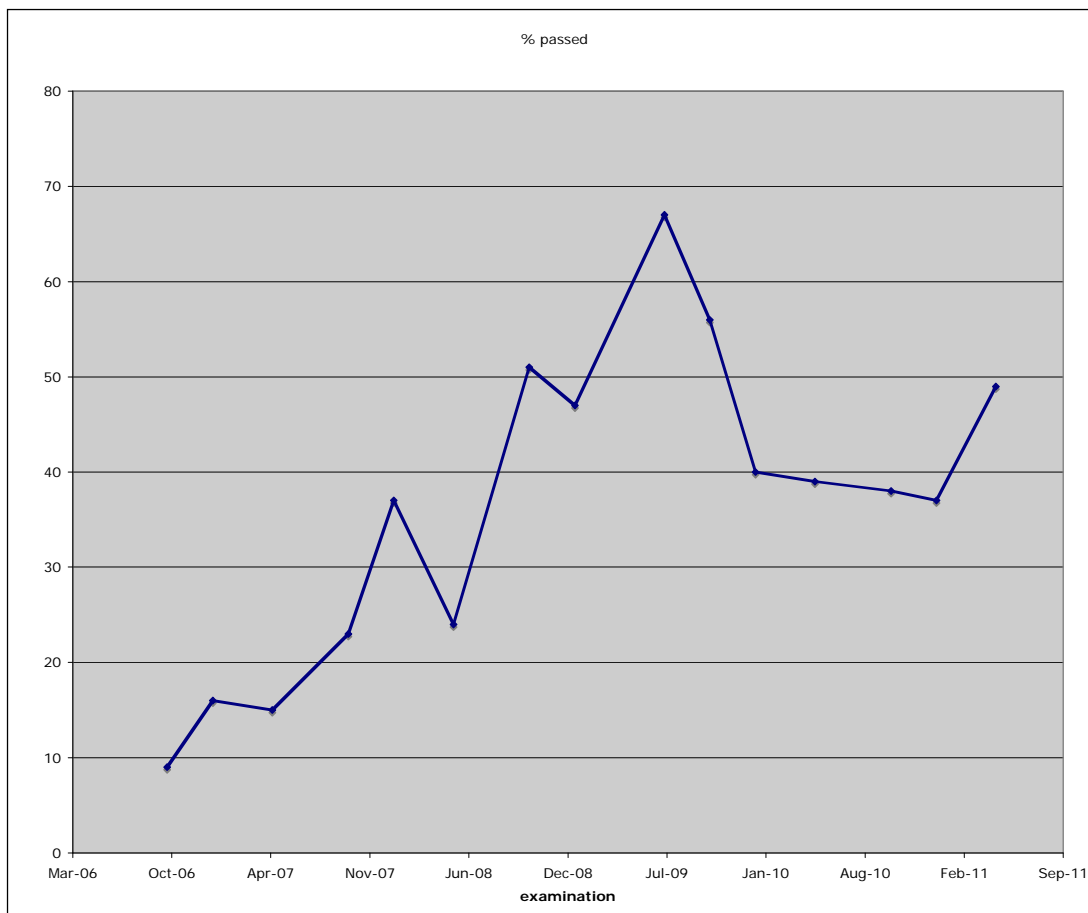
Distribution of scores

Range of marks	Distribution	Number
<60	/	1
61-70	///	3
71-80		0
81-90	////	4
91-100	/////	5
101-110	///// ///	8
111-120	///// //// //	12
121-130	///// //// //	12
131-140	//// // //// // /	16
141-150	///// //// //	13
151-160	///// ///	9
161-170	////	4
171-180	///// /	6
181-190	//	2
Total		95

/ Candidate scored 133 **/** Candidate scored 134
Mean 130/240 Median 134/240 Range 56-181

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	49	52	54	57



Breakdown of results by training

	Failed	Passed	Total
In OST	18	27	45
Not in OST	28	22	50
Total	46	49	95

These differences are not significant (p=0.15)

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	2	7	9
Mersey	0	1	1
N Scotland	1	1	2
North Western	0	1	1
Northern	1	1	2
N Ireland	1	1	2
Oxford	1	0	1
Peninsula	2	0	2
S Yorks & S Humber	0	1	1
SE Scotland	0	1	1
Severn	0	1	1
West Midlands	3	2	5
West Scotland	1	1	2
Wales	2	1	3
Wessex	2	2	4
Yorkshire	0	3	3
Total	18	27	45

Breakdown of results by stage of training

Stage (includes FTSTA)	Failed	Passed	Total
ST1	11	19	30
ST2	4	6	10
Unknown	3	2	5
Total in OST	18	27	45

Breakdown of results by gender

	Failed	Passed	Total
Female	28	27	53
Male	18	22	40
Total	46	49	95

These differences are not significant (p=0.5)

Breakdown of results by country of qualification

	Failed	Passed	Total
UK	23	25	48
Outside UK	23	24	47
Total	46	49	95

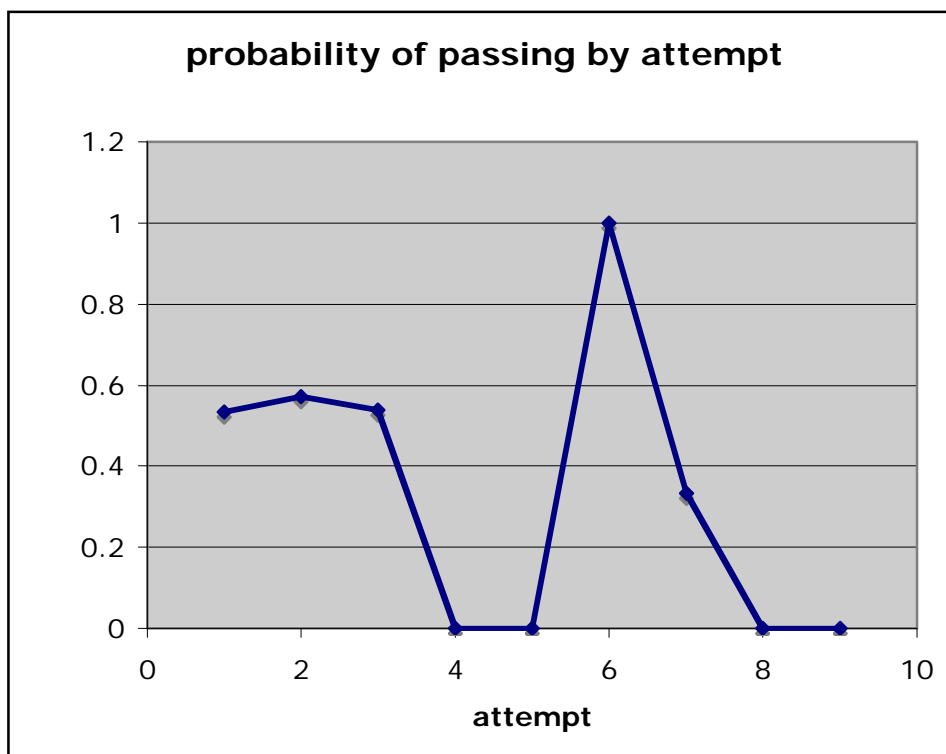
These differences are not significant (p=0.9)

Breakdown of results by declared ethnicity

Ethnicity	Failed	Passed	Total
Asian (Indian, Pakistani, Other)	12	13	25
Black (African, Caribbean)	7	1	8
Chinese	3	6	9
Middle East	3	3	6
White (British, Irish, Other)	14	18	32
Unknown, other, mixed	7	8	15
Total	46	49	95

Breakdown of results by number of previous attempts

Attempts	Failed	Passed	Total
1 (First)	28	32	60
2	6	8	14
3	6	7	13
4	2	0	2
5	1	0	1
6	0	1	1
7	2	1	3
8	0	0	0
9	1	0	1
Any resit	18	17	35
Total	46	49	95



Summary

There has been a welcome increase in the pass rate for this examination, which is predominantly due to a reduction in the pass mark for the MCQ paper. The standard setting process is now informed by a smaller group of senior examiners. The MCQ maintains a high reliability and the CRQ paper reliability has improved since the introduction of double marking. The standard error of measurement is unchanged as candidate performance is still highly variable (candidate marks vary from 56 [23%] to 181 [75%]).

Michael Nelson BSc Hons FRCOphth MEd
Education Advisor

June 2011