

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, KG, KCVO, ADC

Final Report July 2009 Part 1 FRCOphth Examination

Contents:

MCQ Paper

Content	page 2
Statistics	
Distribution of Scores	
Standard Setting	page 3
Comparison to Previous Papers	page 4

CRQ Paper

Content	page 5
Statistics	
Distribution of Scores	
Standard Setting	page 7

Overall Results	page 8
-----------------	--------

Comparison to Previous Part 1 FRCOphth Examinations	page 9
---	--------

Summary	page 9
---------	--------

The ninth Part 1 FRCOphth examination took place on Saturday 4 July 2009. 49 candidates sat the examination, of whom 33 (67%) fulfilled the criteria to pass the examination overall.

**MCQ examination
Content**

Topic	Jan 2009	July 2009	%
Anatomy/embryology	16	19	16
Genetics	9	6	5
Immunology	6	10	8
Biochemistry/Cell biology	11	8	7
Optics	15	20	17
Pathology/microbiology	22	18	15
Pharmacology	14	12	10
Physiology	17	17	14
Statistics & epidemiology	4	5	4
Investigations	6	5	4
	120	120	100

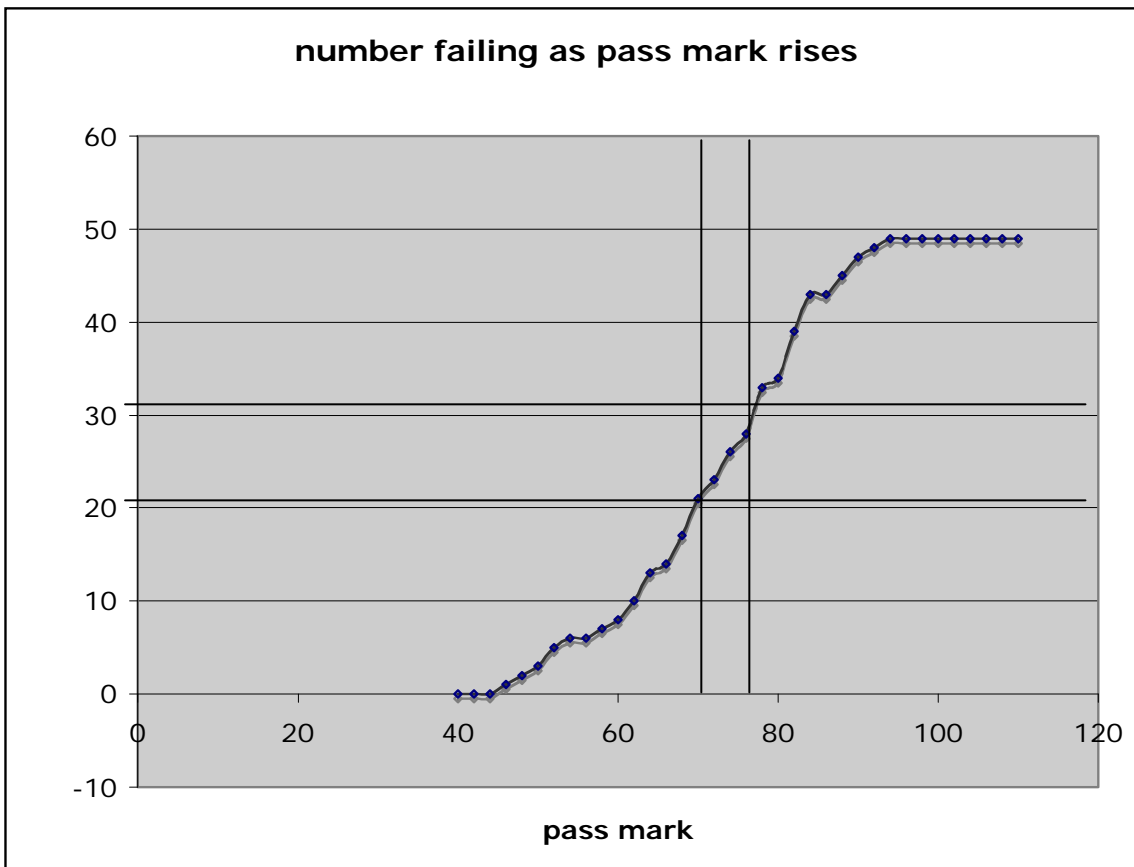
MCQ paper statistics

Mean score:	71.2 (59.3%)
Median score:	73 (68.8%)
Standard deviation:	12.1 (10.1%)
Candidates:	49
KR20: (measurement of reliability)	0.851
Standard error of measurement (SEM):	4.67
Range of marks:	45-92 (38-77%)
Unadjusted Pass mark:	76/120 (63%)
Adjusted pass mark (-1SEM)	71/120 (59%)
Adjusted pass mark (-2SEM)	66/120 (55%)
Pass rate at -1SEM:	26/49 (53%) candidates passed the MCQ at this cut-off

Distribution of scores

Range of scores	Distribution curve	Number
1-30		0
31-40		0
41-50	1111	4
51-60	111111	6
61-70	111111111111	12
71-80	1111111111111	13
81-90	1111111111111	13
91-100	1	1
101-120		0
Total		49

Cumulative raw scores (with pass mark -1 SEM)



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	1	15	41	57
Important	9	27	14	50
Supplementary	5	4	4	13
Questionable	0	0	0	0
Total	15	46	59	120

Results from the examination show the following distribution of questions.

	Difficult	Moderate	Easy	Total
Total	8	69	43	120

This suggests that the examiners overestimated the number of easy and difficult questions, but only to a mild degree.

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

	Difficult	Moderate	Easy
Essential	55% of 1	62% of 15	75% of 41
Important	50% of 9	55% of 27	70% of 14
Supplementary	30% of 5	50% of 4	70% of 4

Weighted marks

	Difficult	Moderate	Easy	Total
Essential	0.55	9.3	30.75	40.6
Important	4.5	14.85	9.8	29.15
Supplementary	1.5	2	2.8	6.3
Total	6.55	26.15	43.35	76.05

The unadjusted pass mark = 76/120 (63%)

The unadjusted pass mark was slightly higher than the last sitting of the examination.

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

	Jan 2008	May 2008	Oct 2008	Jan 09	July 2009
Candidates	73	66	88	79	49
Mean score	62.8 (52.3%)	64.9 (54%)	69 (58%)	67 (56%)	71 (59%)
Reliability (KR 20)	0.833	0.747	0.881	0.871	0.851
SEM	4.82	4.9	4.82	4.91	4.67
Standard setting	Ebel	Ebel	Ebel	Ebel	Ebel
Pass mark	72 (60%)	77 (64%)	74 (62%)	73 (61%)	76 (63%)
Pass mark – 1SEM	67 (55.8%)	68 (56.7%)	70 (58%)	68 (57%)	71 (59%)
33% discrimination					
Negative	9	16	11	12	10
Poor	47	64	45	38	49
Good	35	28	28	41	44
Excellent	29	12	35	29	17
Facility					
Difficult (<25%)	12	13	8	6	8
Moderate	87	84	88	90	69
Easy (>75%)	21	23	23	24	43
Pass rate	27 (37%)	16 (24%)	45 (51%)	34 (43%)	21 (43%)

The CRQ Paper

The examination in July 2009 covered the following areas:

Question	Subject	Topic	Sub-sections	Data provided
1	Anatomy	Orbital apex	10	Diagram to label
2	Pathology	Intraocular tumour	4	Histological photograph and macrophotograph
3	Pathology	Lid tumour	4	Pathology report
4	Anatomy	Retina	8	Histological photograph
5	Optics	Galilean telescope	4	None
6	Optics	Fresnel prism	4	Photograph of prism
7	Optics	Physical optics	7	None
8	Investigations	Visual field	6	Visual field
9	Investigations	MRI scan	8	MRI scans
10	Investigations	Hess chart	5	Hess chart
11	Investigations	OCT	6	OCT image
12	Investigations	Angiogram	5	Fluorescein angiogram

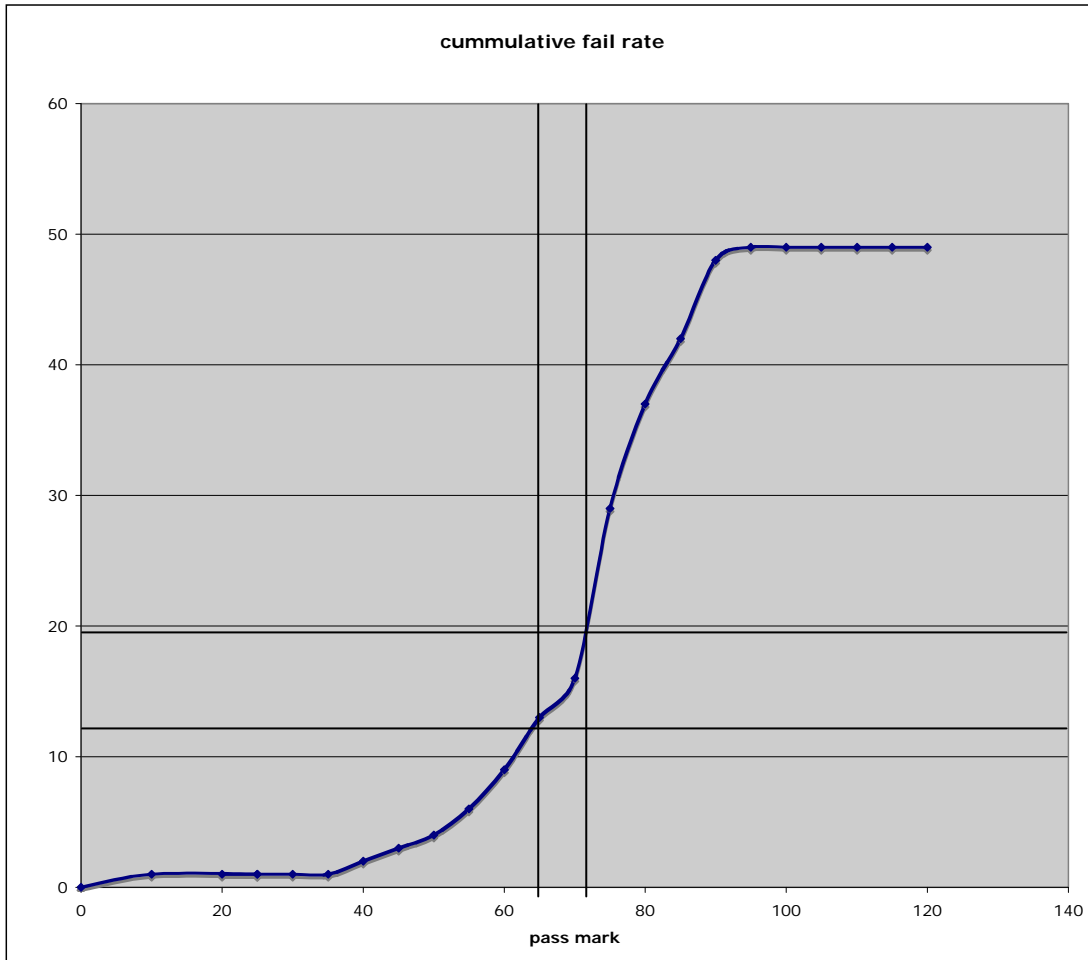
Statistics

Mean score:	70/120 (58%)
Median score:	73/120 (61%)
Standard deviation:	16 (13%)
Range of scores:	0 to 91 (0 to 76%)
Reliability: Cronbach alpha	0.89
Standard error of measurement:	5.3
Unadjusted Pass mark:	70/120 (58%)
Adjusted pass mark (-1SEM)	65/120 (54%)
Adjusted pass mark (-2SEM)	60/120 (50%)
Pass rate at -1SEM:	36/49 (73%) candidates passed the CRQ paper at this cut off

Distribution of scores

Range of marks	Distribution curve	Number
< 20	1	1
21-30		0
31-40	11	2
41-50	11	2
51-60	1111	4
61-70	11111 1111	9
71-80	11111 11111 11111 1111	19
81-90	11111 11111 1	11
91-100	1	1
101-110		0
Total	49	49

Cumulative scores (with pass mark – 1 SEM)



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 pass, fail or borderline. The sum of each median borderline mark was used to produce the pass mark:

	Topic	examiner	No. Pass	No. Fail	No. Borderline	Median Borderline mark
1	Anatomy	1	34	8	7	7
2	Pathology	2	15	16	18	5
3	Pathology	2	6	27	16	4
4	Anatomy	3	9	13	27	6
5	Optics	1	26	18	5	6
6	Optics	4	20	21	8	6
7	Optics	3	17	12	20	5
8	Investigations	5	21	14	14	6
9	Investigations	6	14	18	17	6
10	Investigations	4	21	15	14	6
11	Investigations	6	11	14	24	7
12	Investigations	5	33	12	4	6
						70

Unadjusted Pass mark = 70/120 (58%)

Correlation between MCQ and CRQ papers

(0.799)

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, minus 1 standard error of measurement (SEM) obtained by the standard setting exercise explained above.
2. Obtain a mark in both papers that equals or exceeds the pass mark minus 2 SEM 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 136/240 or 57%. The minimum mark required in each paper (to meet standard 2 above) was 66 /120 (55%) in the MCQ paper and 60/120 (50%) in the CRQ paper.

35 (71%) of 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.

33 (67%) candidates passed the examination.

Distribution of scores

Range of marks	Distribution curve	Number
<81	1	1
81-90	11	2
91-100	1	1
101-110	111	3
111-120	111	3
121-130	1	1
131-140	11111 11111	10
141-150	11111 11111	10
151-160	11111 1	6
161-170	11111 111	8
171-180	111	3
181-190	1	1
Total		49

Mean	142	Median	145
Mode	166	Range	88-181

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	47.5
Oct 2008	88	45	51	58	51
Jan 2009	79	37	47	61	57
July 2009	49	33	67	63	58

Summary

The Part 1 FRCOphth examination has developed into a reliable and valid assessment of the knowledge of basic sciences required for a candidate to make progress in training towards the award of a CCT in ophthalmology in the UK. The reliability of both papers remains high (0.85 MCQ, 0.89 CRQ). Concerns raised about the quality of questions in previous CRQ papers have been addressed.

There has been a steady increase in the success rate in the examination without a reduction in the standard required to pass. The examination provides a powerful stimulus to learning.

Overall the Part 1 FRCOphth Sub-Committee have produced a high quality paper and the College can have confidence in the results and the standard of the candidates who passed the paper.

Mr Michael Nelson BSc FRCOphth MEd
Educational Adviser

August 2009