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FROM THE EXAMINATIONS DEPARTMENT



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Final Report January 2010 Part 1 FRCOphth Examination

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The eleventh Part 1 FRCOphth examination took place on 18 January 2010. 50 candidates sat the examination, of whom 20 (40%) fulfilled the criteria required to pass the examination overall.

MCQ examination

Content

Topic	July 2009	Oct 2009	Jan 2010	%
Anatomy/embryology	19	18	19	16
Genetics	6	9	9	8
Immunology	10	9	14	12
Biochemistry/Cell biology	8	10	6	5
Optics	20	14	16	13
Pathology/microbiology	18	20	22	18
Pharmacology	12	13	12	10
Physiology	17	16	12	10
Statistics & epidemiology	5	7	5	4
Investigations	5	4	5	4
	120	120	120	100

MCQ paper statistics

Mean score:	63.2 (52.6%)
Median score:	62.5 (52.1%)
Standard deviation:	10.88 (9.07%)
Candidates:	50
KR20: (measurement of reliability)	0.794
Standard error of measurement (SEM):	4.94
Range of marks:	39-86 (32.5-71.7%)
Pass mark derived from Standard Setting:	76/120 (63%)
Adjusted pass mark (-1SEM)	71/120 (59%)
Adjusted pass mark (-2SEM)	66/120 (55%)
Pass rate at -1SEM:	15/50 (30%) candidates passed at this cut-off

Distribution of results

Range of scores	Distribution	Number
1-30		0
31-40		1
41-50		5
51-60		14
61-70		15
71-80		13
81-90		2
91-100		0
101-120		0
Total		50

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	8	38	46
Important	9	37	19	65
Supplementary	3	5	1	9
Total	12	50	58	120

Results from the examination show the following distribution of questions.

	Difficult	Moderate	Easy	Total
Total	20	86	14	120

This suggests that the examiners overestimated the number of easy questions.

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 0	62% of 8	75% of 38
Important	50% of 9	55% of 37	70% of 19
Supplementary	30% of 3	50% of 5	70% of 1

Weighted marks

	Difficult	Moderate	Easy	Total
Essential	0.0	5.0	28.5	33.5
Important	4.5	20.4	13.3	38.2
Supplementary	0.9	2.5	0.7	4.1
Total	5.4	27.8	42.5	75.7

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

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

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

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

The CRQ paper

The examination in January 2010 covered the following areas:

Question	Subject	Topic	Sub-sections	Data provided
1	Anatomy	Retina	3	Photomicrograph
2	Investigations	Blood tests	3	Lab report
3	Pathology	Orbital mass	4	Photomicrograph
4	Anatomy	Visual pathway	10	None
5	Optics	Lenses	4	None
6	Optics	Aberrations	4	None
7	Optics	Lasers	3	None
8	Investigations	Orthoptics	3	Photograph
9	Investigations	MRI scan	5	Photograph
10	Investigations	Fluorescein angiogram	5	Photograph
11	Investigations	OCT	6	Photograph
12	Investigations	Colour vision	6	Photograph

Statistics

Mean score:	73.7/120 (61.4%)
Median score:	75/120 (62.5%)
Standard deviation:	(16.03%)
Range of scores:	(13-84%)
Reliability: Cronbach alpha	0.818
Standard error of measurement:	6.6
Pass mark derived from Standard Setting:	70/120 (58%)
Adjusted pass mark (-1SEM):	63/120 (53%)
Adjusted pass mark (-2SEM):	57/120 (47%)
Pass rate at -1SEM:	41/50 (82%) candidates passed at this cut off

Distribution of scores

Range of marks	Distribution curve	Number
< 20		0
21-30		0
31-40		2
41-50		4
51-60		3
61-70		10
71-80		11
81-90		14
91-100		6
101-110		0
Total		50

Comparison to previous years

	Oct 2008	Jan 2009	July 2009	Oct 2009	Jan 2010
Mean score	60%	59%	58%	56%	61%
Median score	64%	62%	61%	58%	63%
Standard deviation	16%	11.5%	13%	16%	16%
Reliability	0.85	0.78	0.89	0.88	0.82
SEM	6.7	6	5.3	6.5	6.6
Pass mark	57%	57%	58%	56%	58%
Modified pass mark	51%	52%	54%	51%	53%
Correlation with MCQ	0.74	0.76	0.80	0.75	0.79

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 borderline mark	Examiner
1	Anatomy	26	14	10	6	A
2	Investigations	28	10	12	6	B
3	Pathology	25	15	10	6	B
4	Anatomy	20	20	10	5	C
5	Optics	30	10	10	6	D
6	Optics	29	10	11	7	E
7	Optics	24	16	10	5	F
8	Investigations	17	25	8	6	G
9	Investigations	31	10	9	6	C
10	Investigations	22	19	9	6	G
11	Investigations	25	8	17	5	A
12	Investigations	22	3	25	6	E

Unadjusted Pass mark = 67/120 (56%)

5 questions were 'easy' or well prepared for with >50% of candidates passing (Q1, 2, 5, 6, 9).

No questions were 'difficult' or ill prepared for with >50% of candidates failing.

2 questions attracted a large number of 'borderline' judgments (Q11, 12)

Correlation between MCQ and CRQ papers:

0.791

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
Oct 2009	101	56	56	62	56
Jan 2010	50	20	40	63	58

Summary

The Part 1 FRCOphth remains a considerable hurdle for candidates and the pass rate for the examination overall was the lowest since May 2008.

22 (44%) of the candidates were in training posts in the UK. Of these, nine (41%) were successful. Of the 28 (56%) candidates not in UK training, the pass rate was 39%. The pass rates for the two groups of candidates has been converging since October 2008 (70% vs. 47%)

The pass mark for the MCQ and CRQ papers is stable.

The correlation between the MCQ and CRQ remains high.

Mr Michael Nelson BSc FRCOphth MEd
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