FSMQ

Foundations of Advanced Mathematics (MEI)

Unit **6989:** Multiple Choice

Free Standing Mathematics Qualification

OCR Report to Centres January 2017

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This report on the examination provides information on the performance of candidates which it is hoped will be useful to teachers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding of the specification content, of the operation of the scheme of assessment and of the application of assessment criteria.

Reports should be read in conjunction with the published question papers and mark schemes for the examination.

OCR will not enter into any discussion or correspondence in connection with this report.

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General comments

The mean mark, at 29 was very similar to previous series. 8 candidates obtained full marks and the lowest mark was 13. At least one candidate did not offer an answer in more than half the questions.
In all questions except one, each of the distracting responses was selected by at least one candidate. In question 11, the conversion graph, response B was seen by all candidates as being correct so no candidate offered this as the incorrect answer.

In 5 questions the correct response was given by fewer than 50% of candidates although in each case the majority gave the correct response.

Q13 Arithmetic – conversion of units
The correct response, B, was chosen by only 45% of candidates while the others chose the other responses in roughly equal measure.

Q23 Algebra – rearrangement of formulae
This was a typical question where candidates have to decide on two rearrangements. In this case the rearrangement of Sunil was correct but that of Kirsty was incorrect (option B). Only 35 % chose this option. 34% chose D, the option that both were incorrect. (The outcome for this question was almost the same as in June 2016.)

Q28 Statistics - Cumulative frequency
Option C required the most work in having to find the upper and lower quartiles and subtracting them. The range of possible values was large enough to ensure that unless the understanding was wrong the correct answer would lie within this range, making this a correct response. The typical incorrect answer was D in which 74 is to be read against 70%. This, however, gives the number who failed rather than passed.

Q31 Trigonometry – trigonometrical ratios
Trigonometry is usually one of the weakest areas for candidates and this series was no exception. In this question 44% gave response C as the incorrect statement and this was correct. However, 25% thought that response D was incorrect in that they thought that when $x = 0$, $1 + 3\cos x \neq 4$.

Q36 Trigonometry – triangles including the cosine formula
The median of an angle of a triangle meets the opposite side at the midpoint only if the triangle is isosceles, and so it was response B that was the correct response. Only 44% chose this response with approximately equal numbers choosing the other responses.

As in previous sessions I offer a summary of questions with the approximate percentage of candidates giving the correct responses.

Percentage obtaining the correct response	Question	Topic
91 – 100	5	Arithmetic – Sensible units
	6	Arithmetic – proportion
	8	Algebra – words into formula
	9	Algebra – simultaneous equations
	15	Statistics – interpretation of compound bar chart
	33	Arithmetic – scale drawings
81 – 90	1	Arithmetic – Definitions
	3	Arithmetic – powers and basic operations
	4	Algebra – solution of equations and inequations
	7	Algebra – substitution of numbers into formulae
	10	Statistics – sampling
	11	Graphs – conversion graph
	14	Algebra – expansion of brackets
	16	Algebra – quadratic sequence
	19	Arithmetic – approximations
	22	Arithmetic – percentage increase and reduction
	25	Algebra – expansion of brackets
	26	Algebra – addition of algebraic fractions
71 – 80	2	Arithmetic – Fractions
	12	Algebra – powers
	18	Statistics – measures of central tendency
	27	Graphs – solution of simultaneous equations graphically
	29	Statistics – probability
	35	Graphs – coordinate geometry of lines
61 – 70	17	Algebra – quadratic expressions and equation
	30	Algebra – solution of quadratic equation
	40	Graphs – cubic graph
51 – 60	20	Graphs – speed-time graph
	21	Vectors
	24	Statistics – probability
	32	Trigonometry – 3 dimensional object
	34	Arithmetic – ratios of similar diagrams
	37	Trigonometry – sine and cosine rules
	39	Arithmetic – mensuration
41 – 50	13	Arithmetic – conversion of units
	28	Statistics – cumulative frequency graph
	31	Trigonometry – trigonometrical ratios
	36	Trigonometry –Triangles including cosine formula
	38	Vectors
31 – 40	23	Algebra – rearrangement of formulae

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