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ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Secondary Education

Mathematics 3302

Specification B

Module 3 Tier I 33003I THREE TIER

Mark Scheme

2007 examination - June series

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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The following abbreviations are used on the mark scheme:

M	Method marks awarded for a correct method.
A	Accuracy marks awarded when following on from a correct method. It is not necessary always to see the method. This can be implied.
B	Marks awarded independent of method.
M dep	A method mark which is dependent on a previous method mark being awarded.
ft	Follow through marks. Marks awarded for correct working following a mistake in an earlier step.
SC	Special Case. Marks awarded for a common misinterpretation which has some mathematical worth.
oe	Or equivalent.
eeoo	Each error or omission.

MODULE 3 INTERMEDIATE TIER 33003I

1	1.61 ÷ 1.4	M1	Allow 161 ÷ 1.4
	1.15	A1	Answer 115 implies M1A0

2	920 – 425 (= 495)	M1	
	their 495 ÷ 3	M1 dep	
	165	A1	SC2 0.165 SC3 0.165 kg with grams crossed out

3(a)	13.824	B1	
3(b)	49	B1	
3(c)(i)	22.0645(…)	B1	Accept $\frac{684}{31}$
3(c)(ii)	22.1	B1 ft	ft from value > 1 dp seen

4(a)	385 × 68 (= 26180)	M1	M2 for 385 × 0.68 oe
	their 26180 ÷ 100	M1	
	261.8(0)	A1	
	262.(00)	B1 ft	ft from value seen SC2 Answer 261
4(b)	0.12 × 385 (= 46.2)	M1	1.12 seen Build up: 10% = 385 ÷ 10 (= 38.5) 2% = (38.5) ÷ 5 (= 7.7) **and** adds
	385 + their 46.2	M1 dep	1.12 × 385
	431.2(0)	A1	SC2 Answer 61.6 SC2 Answer 431 with no working SC2 431.5(…) SC1 293.(…)
4(c)	2 h 30 min = $2\frac{1}{2}$ (h) or 2.5 (h)	B1	
	164 ÷ their time	M1	Time in any form eg 164 ÷ 2.3 or 164 ÷ 150
	65.6	A1	SC2 Answer 66 or 65 with no working SC1 Answer 71.(…) with no working

5(a)	42.5	B1	
5(b)	125	B1	

6	75 – 63 (= 12)	M1	$\frac{63}{75} \times 100$ (= 84) $1 - \frac{63}{75}$ (= 0.16)
	$\frac{\text{their } 12}{75} \times 100$	M1 dep	100 – their 84 their 0.16 × 100
	16	A1	

7(a)	24 ÷ (3 + 5)	M1	Condone 1 ÷ (3 + 5) 3 unsupported is M0
	9	A1	Do not allow $\frac{3}{8}$ (of a day) SC1 Answer 15 or 9 and 15
7(b)	(their 9 + 1) : 24 – (their 9 + 1)	M1	10 and 14 seen
	10:14	A1 ft	Must be integers
	5:7	A1	**Must have seen previous ratio**

8(a)	9.8×10^7	B1	
8(b)	$8.6(4) \times 10^{-8}$	B2	B1 for $8.6(4)^{-8}$ or correct answer not in standard form

9	15 + 28	M1	60 – 17 Any valid method
	43	A1	

10	$\frac{1}{4} \times 24$ or $\frac{1}{3} \times 24$	M1	6 or 8 if correct Do not allow "of" for ×
	$\frac{1}{4} \times 24 + \frac{1}{3} \times 24$	M1 dep	14 if correct
	10	A1	

Alt 10	$\frac{1}{4} + \frac{1}{3}$	M1	$\frac{7}{12}$ if correct $1 - \frac{1}{4} - \frac{1}{3}$ (= $\frac{5}{12}$)
	their $\frac{7}{12} \times 24$	M1 dep	14 if correct their $\frac{5}{12} \times 24$
	10	A1	

11(a)	–12	B1	Allow ⁻12
11(b)	(+)3	B1	
11(c)	0.06	B1	
11(d)	225	B1	
11(e)	$\frac{3}{8} \times \frac{3}{(1)}$ oe	M1	$\frac{9}{24} \div \frac{8}{24}$ is M0 unless used correctly
	$\frac{9}{8}$	A1	oe eg $1\frac{1}{8}$

12(a)	$4 \times 3 + 3 \times 1 (+ 1 \times 0)$	M1	
	15	A1	
12(b) (i)	Won 5 Drawn 2 Lost 3 Won 4 Drawn 5 Lost 1	B1 B1	SC1 5 2 0 and 4 5 0 SC1 5 2 - and 4 5 -
12(b) (ii)	Indicates possible outcomes of the two matches that produce an even total 1 win and 1 loss or 1 draw and 1 loss	B1	Allow: **exactly** one match is lost

13(a)	$\frac{37}{50} \times 100$ oe	M1	£5 = $\frac{100}{10}$ (= 10) £35 = (10) × 7(= 70) £2 = (10) ÷ 5 × 2(= 4) and (70) + (4)
	74	A1	
13(b)	37 ÷ 5	M1	$\frac{\text{their } 74}{100} \times 10$ oe
	7.40	A1	7.4 is M1A0 No ft

14(a)	2 (×) 50 or 5 (×) 20	M1	2 (×) 2 (×) 25 or 2 (×) 5 (×) 10 or 5 (×) 5 (×) 4
	2 (×) 2 (×) 5 (×) 5	A1	Condone use of 1
	$2^2 \times 5^2$	A1	Do not allow use of 1
14(b)	$2^4 \times 7$	B1	

15(a)	50% of 96 25% of 96 $12\frac{1}{2}$% of 96 **and** attempt at sum	M1	Must find 3 values ft and allow 1 error in the 3 values
	84	A1	84 with no working is M0
15(b)	($6\frac{1}{4}$ is) half of $12\frac{1}{2}$	B1	$6\frac{1}{4}$% = 15 (need to see both)
	Add this extra amount on	B1 dep	SC1 Obtains the value 225

16(a)	7	B1	
16(b)	$5^{11}(\div 5^3)$	B1	$5^6 \times 5^2$ or $5^9 \times 5^{-1}$ or $5^9 \div 5^{(1)}$
	5^8	B1 ft	Only ft if numerator seen (as a power of 5) Note: $\frac{25^{11}}{5^3} = 5^8$ is B0B0
16(c)	2.5×10^{-4}	B1	