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ASSESSMENT and QUALIFICATIONS ALLIANCE

Mark Scheme

Mathematics B (3302)
Module 3 Tier I

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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	£$\frac{96}{1.60}$	M1	Accept 96 × 0.625
	£60	A1	

2(a)	Number under 12 is 80	B1	Alternative method: $\frac{1}{10} + \frac{1}{5} = \frac{3}{10}$ B1
	Number over 16 is 160	B1	$1 - \frac{3}{10} = \frac{7}{10}$ B1
	Number is 800 – (80 + 160)	M1	$\frac{7}{10} \times 800$ M1
	560	A1	560 A1
(b)	$\frac{320}{800} \times 100$	M1	
	40%	A1	

3(a)	100 000	B1	Accept 100,000 or 100000
(b)	343	B1	

4	Attempt to scale	M1	
	£3.20 per 100 ml	A1	Accept 3.2p per ml, £16 for 500 ml, 25 ml for 80p oe
	Southern Pharmacy £6 for 200 ml	M1	
	or £3 per 100 ml	A1	Accept 3p per ml, £15 for 500 ml (consistent units with Holiday shop)
	Southern is best	A1	
			OR Special case 156 (.25) ml for £4 B1 £6 for 200 ml B1 £3 per 100 ml M1 £4 gives 133 ml oe Ml or difference 44 ml for £2 Holiday shop B1

5(a)	23.0055…	B1	
(b)	23.0	B1 ft	

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6	Increase = 0.70 (or 70p)	B1	
	Percentage increase = $\frac{0.70}{3.20} \times 100$	M1	
	21.875	A1	Accept 21.9 or 22 or 21.88

7(a)	2×54 or 3×36	M1	
	$2 \times 2 \times 3 \times 3 \times 3$	A1	Accept $2^2 \times 3^3$
(b)	$2^3 \times 3^2$	B1	
	HCF = 36 or $2^2 \times 3^2$	B1	SC1 for 6, 12 or 18

8	160 000 000 ÷ 365	M1	Condone 160 million ÷ 365
	438 356**.** …	A1	
	$4.38\ldots \times 10^5$	A1	Accept 4.4×10^5

9	120 ~ 80%	M1	
	Number was $100 \times \frac{120}{80}$	M1	
	150	A1	

10	One of three consecutive numbers is divisible by 3	B1	
	One of two consecutive numbers is divisible by 2	B1	Note: **must** have statement "Product is divisible by 6" to gain 2nd B1
	∴ Product is divisible by 6		SC1 for 2 numerical examples

11	£5 × 4 – 2p × 4	M1	Must include subtraction of 8p
	£19.92	A1	

12(a)	$140 \times \frac{5}{100}$	M1	10% = £14, 5% = £14 ÷ 2 M1
	7	A1	
(b)	147	B1 ft	

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13	15 minutes = $\frac{1}{4}$ hour	B1	or 24 miles in 30 min B1
	12×4 or $12 \div \frac{1}{4}$	M1	48 miles in 60 min; M1 or $\frac{12}{15}$ M1
	48	A1	48 A1 or = 0.8 A1
	mph	B1	Unit mark **Accept 0.8 miles per minute**

14(a)	37.5%	B2	Digits 375 B1
(b)	$\frac{3}{5} \times \frac{1}{6}$	M1	$\frac{6}{10} \div 6$ or $0.6 \div 6$
	$\frac{1}{10}$	A1	oe
(c)	$\frac{12}{20}$ or $\frac{5}{20}$ seen	M1	Either or $0.6 - 0.25$
	$\frac{7}{20}$	A1	oe
(d)	$\frac{60 \times 300}{90}$	M1	At least 2 approximations
	200	A1	
(e)	$5\frac{8}{24} + \frac{21}{24}$	M1	or $\frac{7}{3} + \frac{31}{8}$ (accept 1 error)
	$= 5\frac{29}{24}$	M1	$= \frac{56}{24} + \frac{93}{24}$ (accept 1 error in total) SC1 $\frac{29}{24}$ oe
	$6\frac{5}{24}$	A1	$\frac{149}{24}$ oe

15	Difference is 2 parts	B1	or parts are 27 and 45 B1
	Difference is $\frac{2}{8} \times 72$	M1	Difference is $45 - 27$ M1
	18	A1	18 A1
			SC1 9

16(a)	1.34358	B1	
(b)	4570	B1	

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17(a)	12.9×10^5	M1	
	1.29×10^6	A1	SC1 for 1 290 000 or 1.3×10^6
(b)	6.4×10^3	B2	B1 for $10^8 \times 10^{-5} = 10^3$ SC1 for 6400

18	Max weight 1 packet is 355 g		
	Min weight 1 packet is 345 g	M1	Max/min of each times 6 ie $6 \times$ any number ($\neq 350$) between 340 and 360
	Max weight 6 packets is 2130 g	A1	Either correct
	Min weight 6 packets is 2070 g	A1	Other correct
			SC1 for max and min of 2100 which is 350×6 ie 2095, 2105