KULLEĠĠ SAN BENEDITTU
Secondary School, Kirkop

HALF YEARLY EXAMINATION – 2016/2017

YEAR 9 Track 3 **MATHEMATICS** **MARKING SCHEME**

Aids for Marking of Scripts

Types of Marks

- **M**(ethod) marks are awarded for knowing a correct method of solution and attempting to apply it. Method marks cannot be lost for arithmetic mistakes. They can only be awarded if the method used would have led to the correct answer had not an arithmetic mistake been made. In general a correct method is implied by a correct answer and therefore **when a correct answer is given and no work is shown, no method marks are lost**.
- **A**(ccuracy) marks are given for correct answer only (c.a.o.) Incorrect answers, even though nearly correct, score no marks. Accuracy marks are also awarded for incorrect answers which are correctly followed through (f.t.) from an incorrect previous answer, **provided that f.t. is indicated in the mark scheme**. No method (M) or accuracy (A) marks are awarded when a wrong method leads to a correct answer.
- **B** marks are accuracy marks awarded for specific results or statements independent of the method used.

Misreading

M marks can still be earned (unless that part of the question is trivialized) but the final A marks are lost.

Crossed out working

An answer or working that is crossed out and not replaced is marked as if it were not crossed out. If the answer or working is replaced, then the crossed out answer or working is ignored and should not be considered for marking.

Units

In general, missing or inaccurate units are not penalised unless otherwise indicated in the mark scheme.

Other

- Incorrect working or statements following a correct answer are ignored.
- Marks are not sub-divisible; no half marks may be awarded.
- Other abbreviations used:
  - o.e. (or equivalent)
  - e.e.o.o. (each error or omission)
- Markers are advised to indicate the M, A or B marks awarded in the body of the script and then write their total in the margin. The total mark for each question should be written in the table included at the top of page 1 of the main paper. This measure facilitates the moderation of papers.

NON CALCULATOR PAPER (Total: 25 Marks)

Quest.		Requirements	Mark		Additional Guidance
1		8	B1	1	
2	a	$\frac{y}{x}$	B1	2	
	b	$2(xy - 2z + 4w)$	B1		
3	a i)	1	B1	4	
	ii)	$\left(\frac{2}{1}\right)^2$	M1		
		$= 4$	A1		
	b	$27p^6$	A1		
4	a	5.7×10^5	B1	2	
	b	5.7×10^{-2}	B1		
5		$\frac{5}{2} \times \frac{7}{10} + \frac{4}{3}$	M1	4	Seen or implied
		$\frac{7}{4} + \frac{4}{3}$	M1		
		$\frac{21}{12} + \frac{16}{12}$	M1		
		$\frac{37}{12}$ or $3\frac{1}{12}$	A1		
6		$\frac{3}{5}$: 1 or 0.6 : 1	B1	1	
7		$v - u = 4r$	M1	2	
		$\frac{v-u}{4} = r$	A1		
8		$\underline{4 \times 6}$, $\underline{5 \times 7}$	B2	2	Both correct
9		70×20	M2	3	Both seen
		1400	A1		
10		0.6 60%	B2	4	
		$\frac{2}{5}$ o.e. 0.4	B2		

MAIN PAPER (Total: 75 Marks)

Quest.		Requirements	Mark		Additional Guidance
1	a	2 builders = 30 days 5 builders = ? $\frac{30 \times 2}{5}$ = 12 days	M1 M1 A1	6	
	b	$\frac{24}{64} = \frac{3}{x}$ $x = \frac{3 \times 64}{24}$ $= 8$	M1 M1 A1		Accept other valid methods

	ai	$\frac{x}{(3-x)}$	B1		
	aii	$\frac{a-b}{-(a-b)(b-2a)}$ $\frac{1}{-(b-2a)}$ *or* $\frac{1}{2a-b}$	M1 A1		
2	bi	$2(6+2x) = 48$ $12 + 4x = 48$	M1 A1	8	Seen or implied
	bii	$4x = 48 - 12$ $4x = 36$ $x = \frac{36}{4}$ $x = 9cm$	M1 M1 A1		
3	a	Sand = 28% × 2 = 56 % Marble = 100% – 28% – 56% = 16%	M1 M1 A1	7	
	b	Cement : Sand : Marble 28 : 56 : 16 7 : 14 : 4	 M1 A1		
	c	100% = 50kg 16% = ? $\frac{16 \times 50}{100}$ = 8kg	M1 A1		
4		100% – 35% = 65% 65% = €351 100% = ? $\frac{100 \times 351}{65}$ = €540	M1 M1 A1	3	
5	a	S = 180*n* – 360 S = 180(6) – 360 S = 720° each int. angle = $\frac{720}{6}$ = 120°	 M1 M1 A1	11	
	b	each ext. = 180 – 156 = 24° $\frac{360}{24}$ = 15 sides	M1 M1 A1		
	c	int. angle = 180 – *x* $720 = 180 - x + 110 + 120 + 140 + 140 + 90$ $720 = 780 - x$ $x = 780 - 720$ $x = 60°$	M1 M1 M1 M1 A1		Accept other valid methods
6	a	$x^2 - 7x + 5x - 35$ $x^2 - 2x - 35$	M1 A1	4	Allow 1 error
	b	$\frac{12a^2b^3}{2b}$ $6a^2b^2$	M1 A1		*or* simplifying numerator with denominator

7		$I = \frac{PTR}{100}$ $P = \frac{I \times 100}{TR}$ $P = \frac{3645 \times 100}{6 \times 4.5} = \frac{364500}{27}$ $P = €13{,}500$	M1 M1 A1	3	
8	a	5, 9, 11	B2	11	(–1 mark for e.e.o.o)
	bi	(100 × 2) + 1 = 200 + 1 = 201	M1 A1		
	bii	3, 5, 7, 9, 11 2n: 2, 4, 6, 8, ... = 2N + 1	M1 A1		
	c	2n + 1 = 321 2n = 321 – 1 2n = 320 n = 320/2 n = 160	M1 M1 A1		
	d	No as 240 is an even number	A1 M1		Or any other valid reason
9	a	3 + 11 + 13 + 15 + 5 + 3 = 50	B1	5	
	b	4 people	B1		
	c	= [(1 × 3) + (2 × 11) + (3 × 13) + (4 × 15) + (5 × 5) + (6 × 3)] / 50 $= \frac{167}{50}$ = 3.34	M1 M1 A1		
10		$\frac{2x+4}{4} + \frac{2x}{4} = \frac{8}{4}$ $2x + 4 + 2x = 8$ $4x = 4$ $x = 1$	M1 M1 M1 A1	4	
11	a	$AB^2 = AD^2 + BD^2$ $AB^2 = 2.4^2 + 3.5^2$ $AB^2 = 18.01$ AB = 4.2 cm	M1 M1 A1	6	
	b	$DC^2 = BC^2 - BD^2$ $DC^2 = 7.6^2 – 3.5^2$ $DC^2 = 45.51$ DC = 6.7 cm	M1 M1 A1		
12	a	$4x - 2 + 6x = 3 - 2x + 1$ $4x + 6x + 2x = 3 + 1 + 2$ $12x = 6$ $x = \frac{6}{12}$ $x = \frac{1}{2}$	M2 M1 A1	7	
	b	2.5 2.7 $x = 2.6$	M1 M1 A1		