

NAME: ADM. NO:

CANDIDATE'S SIGNATURE: DATE:

 121 - ALT A
 MATHEMATICS
 FORM 2 END OF TERM EXAMINATIONS
 MARCH-2018 TERM 1
 TIME: 60 MIN

CANDIDATE'S SCORE

FOCUS A365

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Kenya certificate of secondary education (K.C.S.E) Assessment Test

Answer All Question Provided in this Question Paper (30 MARKS)

- 1 Two neon lights are turned on at the same time. One blinks every 4 seconds and the other blinks every 6 seconds. In 60 seconds, how many times will they blink at the same time? 3 mks

1. Find the LCM

2	4	6
2	2	3
3	1	3
1	1	1

$$2 \times 2 \times 3 = 12 \quad \checkmark B_1$$

2. Divide the LCM with 60

$$\frac{60}{12} = 5 \quad \checkmark A_1$$

- 2 Evaluate:

$$\sqrt[3]{27x^3y^9}$$

$$\begin{aligned} & \sqrt[3]{27} \times \sqrt[3]{x^3} \times \sqrt[3]{y^9} \quad \checkmark M_1 \\ & 3 \times x \times y^3 \\ & = 3xy^3 \quad \checkmark A_1 \end{aligned}$$

3 Find the reciprocal of 0.002978 from a mathematical table

2 mks

$$\frac{1}{0.002978} = \frac{1}{10^{-3} \times 2.978} \checkmark M_1 = 10^3 \times 0.3357$$

$$= 335.7 \checkmark A_1$$

4 Use logarithm tables to evaluate:

4 mks

$$\sqrt{\frac{13.28 \times 27^{\frac{1}{3}}}{2 \div 0.012}}$$

No	Std Form	Log
13.28	1.328×10^1	1.1232
$27^{\frac{1}{3}}$	2.7×10^0	$1.4314 \times \frac{1}{3}$
		0.4771
		+ 1.1232
		<hr/> 1.6003 <hr/>
2	2.0×10^0	0.3010
0.012	1.2×10^{-2}	$\bar{2}.0792$
		<hr/> 2.2218 <hr/>
		1.6003
		$\bar{2}.2218$
		<hr/> 3.3785 $\times \frac{1}{2}$ <hr/>
	$10^1 \times 10^{0.6893}$	1.6893
<u>48.90</u>	$10^1 \times 4.890$	\leftarrow

B₁ for all correct logarithms
 M₁ for all correct operations
 B₁ for all correct answers resulting from operations
 A₁ for the correct answer.
 = 4 marks.

5 a The sum of four consecutive even numbers is 60. Find the numbers.

2 mks

Let the first even number be x

$$\therefore x + (x+2) + (x+4) + (x+6) = 60$$

$$4x + 12 = 60$$

$$4x = 60 - 12$$

$$4x = 48$$

$$\therefore x = 12$$

$\checkmark B_1$

The numbers are:

$$12, (12+2), (12+4), (12+6)$$

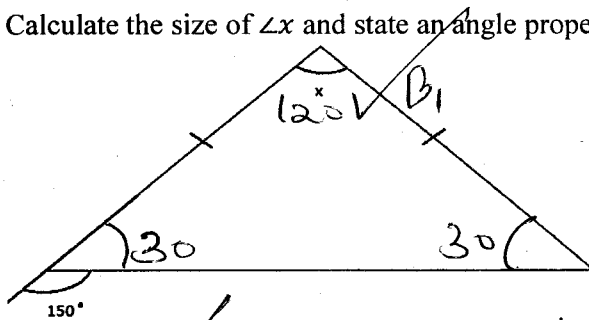
$$12, 14, 16, 18$$

$\checkmark A_1$

- b Simplify the expression
 $5a - 4b - 2[a - (2b + c)]$

$$\begin{aligned}
 &5a - 4b - 2(a - 2b - c) \\
 &5a - 4b - 2a + 4b + 2c \\
 &5a - 2a - 4b + 4b + 2c \quad \checkmark M_1 \\
 &3a + 2c \quad \checkmark A_1
 \end{aligned}$$

- c Calculate the size of $\angle x$ and state an angle property that satisfies your answer 2 mks



$\angle x = 120^\circ$ because the sum of all angles of a triangle add up to 180° $\checkmark M_1$

- 6 A line $y = \frac{1}{3}x + 1$ is perpendicular to line XY passing through coordinate (4,3). What is the equation on line XY? (give your answer in the form $y = mx + c$) 3 mks

$$y = \frac{1}{3}x + 1$$

$$M_1 = \frac{1}{3}$$

but $M_1 M_2 = -1$

$$M_2 = -1 \div \frac{1}{3}$$

$$M_2 = -1 \times \frac{3}{1}$$

$$M_2 = -3 \quad \checkmark B_1$$

$$M_2 = -3$$

Coordinates (4,3) (x,y) $\checkmark M_1$

$$\frac{y-3}{x-4} = -3 \quad \checkmark M_1$$

$$y-3 = -3(x-4)$$

$$y-3 = -3x+12$$

$$y = -3x+12+3$$

$$y = -3x+15 \quad \checkmark A_1$$

7 A shopkeeper made a loss of 30% by selling an electric iron at sh. 700. What profit would he have made had he sold it at sh. 1150? **3 mks**

If $(100-30)\%$ = 700 shill.
100% ?

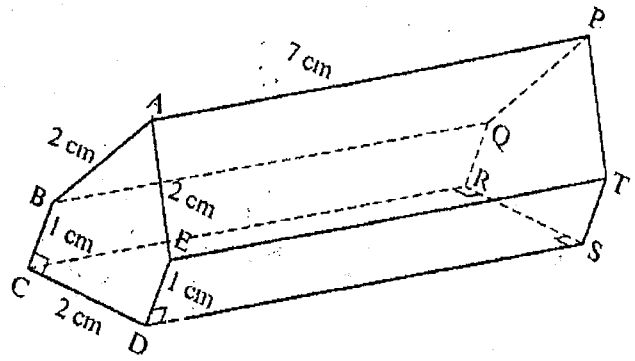
$$\frac{100}{70} \times 700 = \text{sh. } 1000$$

∴ Selling price = sh. 1000

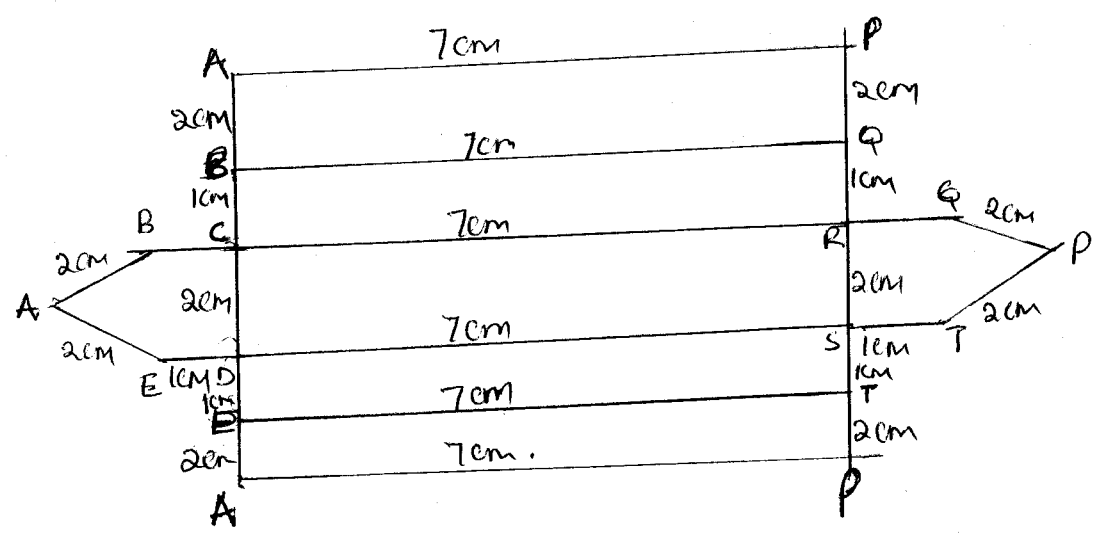
$$\begin{aligned} \text{Profit} &= \text{Selling price} - \text{buying price} \\ &= 1150 - 1000 \end{aligned}$$

$$\text{Profit} = \text{sh. } 150$$

8 The figure below represents a prism of length 7 cm $AB = 3$ mks
 $AE = CD = 2$ cm and $BC - ED = 1$ cm



Draw the net of the prism



Correct labelling of letters = 1 Mark
Correct labelling of sizes = 1 Mark
Relevant shape = 1 Mark

3 Marks

- 9 It takes 30 workers 6 days working 8 hours a day to harvest maize in a farm. How many days would 50 workers working 6 hours a day take to harvest the maize? 2 mks

Workers	days	hours	
30	6	8	
50	6	6	

$$\frac{30}{50} \times \frac{8}{6} = \frac{24}{5} = 4\frac{4}{5} \text{ days.}$$

✓ A₁

- 10 All prime numbers less than ten are arranged in descending order to form a number.
- a. Write down the number formed. 1 mk

7532

✓ A₁

- b. State the total value of the second digit in the number formed in (a) above. 1 mk

In 7532, second digit is 5

Therefore total value = 500

✓ A₁

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