TANZANIA HEADS OF ISLAMIC SCHOOL COUNCIL

FORM II INTER ISLAMIC MOCK EXAMINATION 2026

MATHEMATICS

MARKING SCHEME

1. (a) Let x= $0.\dot{2}$……(i)

10x = $2.\dot{2}$……..(ii)

$10x - x = 2.\dot{2} - 0.\dot{2}$ $(\mathbf{00\frac{1}{2}\ Mark})$

9x = 2 $(\mathbf{00\frac{1}{2}\ Mark})$

x = $^{2}/_{9}$ $(\mathbf{00\frac{1}{2}\ Mark})$

Let y = $0.\dot{3}$……(i)

10x = $3.\dot{3}$……..(ii)

$10x - x = 3.\dot{3} - 0.\dot{3}$ $(\mathbf{00\frac{1}{2}\ Mark})$

9x = 3 $(\mathbf{00\frac{1}{2}\ Mark})$

x = $^{3}/_{9}$ $(\mathbf{00\frac{1}{2}\ Mark})$

(i) $x + y = {}^{2}/_{9} + {}^{3}/_{9}$

$= \frac{2+3}{9} = {}^{5}/_{9}$

∴ $x + y = {}^{5}/_{9}$ **(01 Mark)**

(ii) $xy = {}^{2}/_{9} \times {}^{3}/_{9}$

$= {}^{2}/_{9} \times {}^{1}/_{3} = {}^{2}/_{27}$

∴ $xy = {}^{2}/_{27}$ **(01 Mark)**

(b) Let the total number of trouser be y $(\mathbf{00\frac{1}{2}\ Mark})$

Blue: White: Green = 3:4:5

Total = 3+4+5 = 12 $(\mathbf{00\frac{1}{2}\ Mark})$

White: $\frac{4}{12}y = 20$ $(\mathbf{00\frac{1}{2}\ Mark})$

$y = \frac{20\times12}{4} = 60$ $(\mathbf{00\frac{1}{2}\ Mark})$

∴ Total number of trouser = 60 **(01 Mark)**

Blue: $\frac{3}{12} \times 60 = 15$

∴ There are 15 blue trouser **(01 Mark)**

Green: $\frac{5}{12} \times 60 = 25$

∴ There are 25 blue trouser **(01 Mark)**

Alternatively

b: w: g = 3:4:5

b: 20: g = 3:4:5

$\frac{b}{20} = \frac{3}{4}$

4b = 60

B = 15

∴ There are 15 blue trousers

20:g = 4:5

$\frac{20}{g} = \frac{4}{5}$

4g = 100

G = 25

∴ There are 25 blue trousers

2. (a) (i) Given A : B = 3 : 5
A : C = 6 : 7

A : B = (3 : 5) × 2 = 6 : 10 **(01 Mark)**

A : C = (6 : 7) × 1 = 6 : 7 **(01 Mark)**

∴ A : B : C = 6 : 10 : 7 **(01 Mark)**

Also

A: B = 3.5: 1 × 6

A:C=6:7 × 3.5

A:B=21:6

A:C=21:24.5

∴ A:B:C=21:6:24.5

OR

A:B:C=42:12:49

(ii) 80% of 930Ksh = $\frac{80}{100} \times 930 = 744$ Ksh **(01 Mark)**

1Ksh = 20Tsh

744 Ksh = ?

744 × 20 = 14880 Tsh

∴ A visitor should get 14,880 Tsh **(01 Mark)**

(b) Let R be the Monthly rent
A be the Area

N be the number of roommates

$R \propto A \ \& \ R \propto \frac{1}{N}$

$R \propto \frac{A}{N}$

$R = K\frac{A}{N}$ **(01 Mark)**

$K = \frac{RN}{A}$ But, R = 400,000

N = 3

A = 900

$K = \frac{400{,}000 \times 3}{900} = \frac{4000}{3}$ **(01 Mark)**

$R_2 = \frac{KA_2}{N_2}$

$R = \frac{\frac{4000}{3} \times 1200}{4} = \frac{4000 \times 400}{4}$ **(01 Mark)**

R = 400,000Tsh

∴ The rent for an apartment is 400,000 Tsh **(02 Marks)**

3. (a) The number of passengers = 150 × 16 × 5 **(01 Mark)**

$= 12000$**(01 Mark)**

$\approx 10,000$ **(01 Mark)**

∴ The Train can carry the passengers ≈ 10, 000 Passengers **(01 Mark)**

(b) The length of all the pipes = 64 × 4.2m

≈ 60 × 4 **(01 Mark)**

≈ 240m **(01 Mark)**

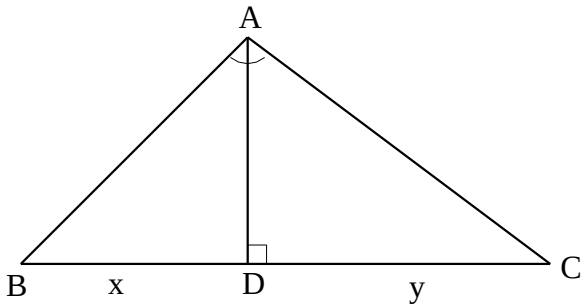
∴ The length of all the pipes is ≈ 240m **(01 Mark)**

(c) $67.3 \times \frac{1}{4.96} = 67.3 \times 0.2016$

$= 13.56768$ **(02 Marks)**

≈14 in the whole number **(01 Mark)**

4. (a)



ΔABC ~ ΔDAC

$\frac{AB}{DA} = \frac{BC}{AC} = \frac{AC}{DC}$ **(01 Mark)**

$\frac{15}{DA} = \frac{x+y}{20} = \frac{20}{y}$

$BC^2 = AB^2 + AC^2$ **($00\frac{1}{2}$ Mark)**

$(x + y)^2 = 15^2 + 20^2$

` $= 225 + 400$ **(01 Mark)**

$x + y = \sqrt{625}$

$x + y = 25$

$\frac{BC}{AC} = \frac{AC}{DC}$

$\frac{x+y}{20} = \frac{20}{y}$

$\frac{25}{20} = \frac{20}{y}$

$y = \frac{20 \times 20}{25}$ **(01 Mark)**

$y = 16cm$

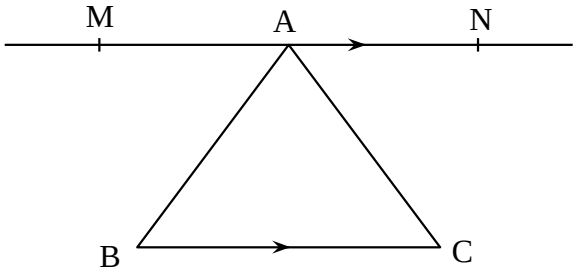
x + y = 25

$x = 25 - 16$

$x = 9$ **(01 Mark)**

$\therefore x = 9cm$ and $y = 16cm$ **(00 $\frac{1}{2}$ Mark)**

(b)



(02 Mark)

If $MN \ // BC$

$M\widehat{A}B = A\widehat{B}C$ and $N\widehat{A}C = A\widehat{C}B$– Alternate interior angles **(01 Mark)**

$M\widehat{A}B + B\widehat{A}C + N\widehat{A}C = 180°$– Angles on a straight line **(01 Mark)**

$A\widehat{B}C + B\widehat{A}C + A\widehat{C}B = 180°$ **(01 Mark)**

Hence proved.

5. (a) $(3^{x+3})(5^{2-y}) = (1/3)^4 (1/5)^8$

$3^{x+3} = 3^{-4}$ **(01 Marks)**

$x + 3 = -4$

$x = -4 - 3$

$x = -7$ **(0 $\frac{1}{2}$ Mark)**

$5^{2-y} = 5^{-8}$ **(00 $\frac{1}{2}$ Mark)**

$2 - y = -8$

$y = 2 + 8$

$y = 10$ **(0 $\frac{1}{2}$ Mark)**

The product $xy = -7 \times 10$ **(00 $\frac{1}{2}$ Mark**

$= -70$ **(01 Mark)**

(b) $\left(\frac{\sqrt{3}}{\sqrt{5}+\sqrt{3}}\right)\left(\frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}-\sqrt{3}}\right) = \left(\frac{\sqrt{15}-3}{5-3}\right)$ **(01 Mark)**

$= \left(\frac{\sqrt{15}-3}{2}\right) = \left(\frac{a+\sqrt{b}}{c}\right)$

$= \left(\frac{-3+\sqrt{15}}{2}\right) = \left(\frac{a+\sqrt{b}}{c}\right)$ (**00 $\frac{1}{2}$ Mark**)

$\therefore a = -3, b = 15$ and $c = 2$ (**01 $\frac{1}{2}$ Mark**)

(c) $\log\left(\frac{35}{2}\right) = \log 35 - \log 2$ (**00 $\frac{1}{2}$ Mark**)

$= \log(5 \times 7) - \log 2$ (**00 $\frac{1}{2}$ Mark**)

$= \log 5 + \log 7 - \log 2$ (**00 $\frac{1}{2}$ Mark**)

$= 0.6990 + 0.8451 - 0.3010$ (**00 $\frac{1}{2}$ Mark**)

$= 1.243$

$\therefore \log\left(\frac{35}{2}\right) = 1.2431$ (**01 Mark**)

6. (a) Let x be number of boys
y be number of girls

$\begin{cases} x + y = 36 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (i) \\ -x + 2y = 12 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (ii) \end{cases}$ **(01 Mark)**

$+\begin{cases} x + y = 36 \\ -x + 2y = 12 \end{cases}$ **(01 Mark)**

$\frac{3y}{3} \quad \frac{48}{3}$

y = 16 **(01 Mark)**

for x

x = 36 – y

x = 36 – 16

x = 20 **(01 Mark)**

∴ The number of boys and girls are 20 and 16 respectively. **(01 Mark)**

(b) Let x be the number of years ago

The age of father for x years ago = $35 - x$ (**00 $\frac{1}{2}$ Mark**)

The age of son for x years ago = $9 - x$ (**00 $\frac{1}{2}$ Mark**)

Product $(35 - x)(9 - x) = 87$ **(01 Mark)**

$x^2 - 44x + 228 = 0$ **(01 Mark)**

$x(x - 6) - 38(x - 6) = 0$ **(01 Mark)**

x = 38 or x = 6

∴ The number of years ago was 6 years **(01 Mark)**

7. (a) $\mu = \{1, 2, 3, 4, 5, 6, \ldots, 25\}$

$A = \{3, 6, 9, 12, 15, 18, 21, 24\}$ (**00 $\frac{1}{2}$ Mark**)

$B = \{1, 2, 3, 6, 9, 18\}$ (**00 $\frac{1}{2}$ Mark**)

$A \cap B = \{3, 6, 9, 18\}$ **(01 Mark)**

(i) $n(A \cap B) = 4$ **($00\frac{1}{2}$ Mark)**

(ii) $AUB = \{1, 2, 3, 5, 6, 9, 12, 15, 18, 21, 24\}$ **(01 Mark)**

$(AUB)' = \{4,5,7,8,10,11,13,14,16,17,19,20,22,23,25\}$ **(01 Mark)**

$n(AUB)' = 15$ **(01 Mark)**

(b) Given that $n(U) = 300, n(B) = 200, n(R) = 120\ n(B \cap R) = 60$

From: $n(B \cup R) = n(B) + n(R) - n(B \cap R)$ **($00\frac{1}{2}$ Mark)**

$n(B \cup R) = 200 + 120 - 60$

$= 320 - 60$ **(01 Mark)**

$\therefore n(B \cup R) = 260$ **($00\frac{1}{2}$ Mark)**

From $n(U) = n(B \cup R) + n(B \cup R)'$ **(01 Mark)**

$300 = 260 + n(B \cup R)'$ **($00\frac{1}{2}$ Mark)**

$n(B \cup R)' = 300 - 260$

$n(B \cup R)' = 40$ Type equation here.

$\therefore$ 40 people like neither Banana nor rice **(01 Mark)**

8. (a) Since $\overline{AC} = \overline{BC}$ . . . ΔABC is Isosceles triangle

$A\hat{B}C = B\hat{A}C$

$b = 60°$ **(01 Mark)**

$A\hat{B}C + B\hat{A}C + A\hat{C}B = 180°$ . . . angles in triangles. **($00\frac{1}{2}$ Mark)**

$b + 60° + a = 180°$

$60° + 60° + a = 180°$

$a = 180° - 120°$

$a = 60°$ **(01 Mark)**

$\overline{BD} = \overline{CD}$ . . . ΔBCD (by SSS in triangle)

$C\hat{B}D = B\hat{C}D$

$40° = c$ **(01 Mark)**

$c = 40°$ — 01 mark

$C\hat{B}D + B\hat{C}D + C\hat{D}B = 180°$ . . . angles in triangle **($00\frac{1}{2}$ Mark)**

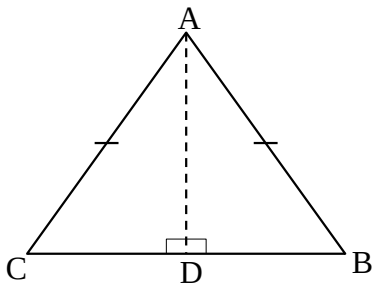
$40° + 40° + d = 180°$

$d = 180° - 80°$

$d = 100°$ **(01 Mark)**

$\therefore a = 60°, b = 60°, c = 40°$, and $d = 100°$

(b)



$\overline{AC} = \overline{AB}$ given **(01 Mark)**

AD – common **(01 Mark)**

$A\hat{D}C = A\hat{D}B = 90° -$ given **(01 Mark)**

$\therefore \Delta ADC \cong \Delta ADB$ (RHS) **(01 Mark)**

Since $\Delta ADC \cong \Delta ADB$

Since $\Delta ADC \cong \Delta ADB$

$\overline{CD} = \overline{DB}$

$\therefore$ D is a Midpoint of $\overline{BC}$ **(01 Mark)**

9. (a) Given that $A(n, 3), B(4,5), m = {}^{2}/_{3}$

Slope (m) $= \frac{y_2 - y_1}{x_2 - x_1}$ **(01 Mark)**

${}^{2}/_{3} = \frac{5-3}{4-n}$ **(01 Mark)**

${}^{2}/_{3} = {}^{2}/_{4-n}$ **(01 Mark)**

$6 = 2(4 - n)$

$6 = 8 - 2n$ **(01 Mark)**

$6 - 8 = -2n$

$-2 = -2n$

$n = 1$ **(01 Mark)**

(b) Given that $2x + 3y = 12$

$\frac{3y}{3} = \frac{-2x+12}{3}$ **(01 Mark)**

$y = {}^{-2}/_{3}\,x + 4$ **(02 Marks)**

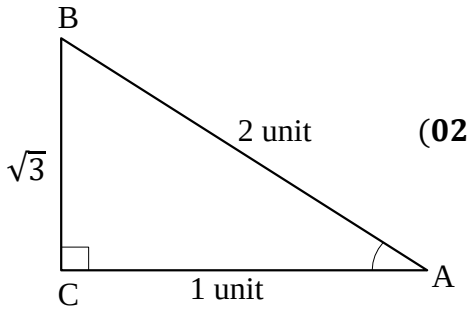
$\therefore$ The gradient is ${}^{-2}/_{3}$ **(01 Mark)**

y intercept is 4 **(01 Mark)**

10. (a) Given $10 \cos A = 5$

(i) $\cos A = \frac{5}{10}$

$\cos A = \frac{5}{10} = \frac{Adj}{Hy}$



(**02 Mark**)

(ii) From Pythagoras theorem

$AB^2 = AC^2 + BC^2$

$2^2 = 1^2 + BC^2$

$BC^2 = 4 - 1$

$= \sqrt{3}$ (**01 Mark**)

$BC = \sqrt{3}$

$\sin A = \frac{OPP}{Hyp} = \frac{\sqrt{3}}{2}$

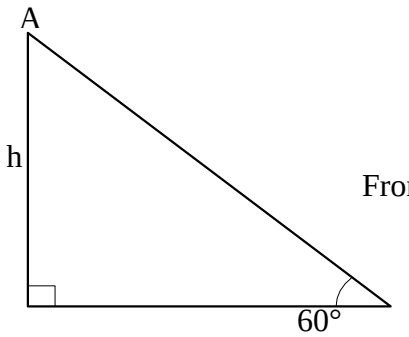
$\sin A = \frac{\sqrt{3}}{2}$ (**01 Mark**)

$5 \sin A \cos A$

$5 \times \frac{\sqrt{3}}{2} \times \frac{1}{2} = \frac{5\sqrt{3}}{4}$

$\therefore 5 \sin A \cos A = \frac{5\sqrt{3}}{4}$ (**01 Mark**)

(b)



From $\tan\theta = \frac{opp}{Adj}$
(**02Mark**)

$\tan 60 = \frac{h}{60}$ (**01 Mark**)

$h = 60 \tan 60$

$h = 60 \times \sqrt{3}$ (**01Mark**)

$h = 103.92cm$

$\therefore$ The height of tree $= 103.92c$ (**01 Mark**)

Wabillah Tawfiiq