



STAREHE GIRLS' CENTRE MOCK EXAMINATION 2025

PHYSICS

PAPER 3



MARKING SCHEME

QUESTION 1

PART A

(i) Table 1

Angle. i°	10	15	20	25	30	35	40
y(cm)	4.5	4.3	4.1	3.9	3.7	3.5	3.4

(Check trend)

7 marks – All correct.

1 mark – Each correct

(J) Graph (5 marks)

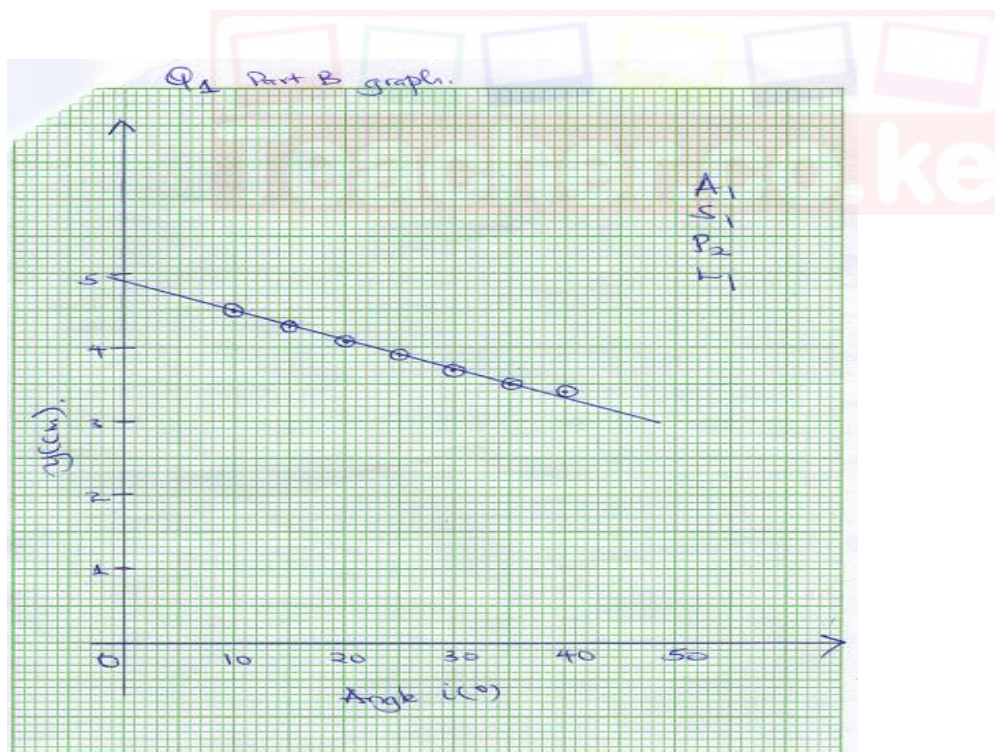
(i) $y_0 = 4.9\text{cm} \checkmark^1$ (y – intercept of student)

(ii) $b = 6.1\text{cm} \pm 0.1 \checkmark^1$

(iii)

$$\eta = \frac{b}{y_0} = \frac{6.1}{4.9} \checkmark^1$$

$$= 1.245 \checkmark^1$$



PART B

a) $h = 15\text{cm} \pm 1\text{cm} \checkmark$ (must be to 1.d.p)

b) $d = 2\text{cm} \pm 1\text{cm} \checkmark$ [Use students value] (must be to 1.d.p)

c) $t = h - d$
 $= 15 - 2$ (must be to 1.d.p)
 $= 13\text{cm} \checkmark$ [Use students substitution of c and d]

d) $M = \underline{61.2 \pm 10\text{g}} \checkmark$ [Use students value]

e) $D = 2.53\text{cm} \pm 0.1\text{cm} \checkmark$ (must be to 2.d.p)

f) $R = \frac{2.53}{2} = 1.265\text{cm} \checkmark$

g) $M = 12\rho\pi R^2$

$$\rho = \frac{M}{12\pi R^2}$$

$$= \frac{61.2}{12 \times \pi \times 1.265^2} \checkmark^1 \text{ Correct substitution}$$

$$= 1.014\text{gcm}^{-3} \checkmark^1$$

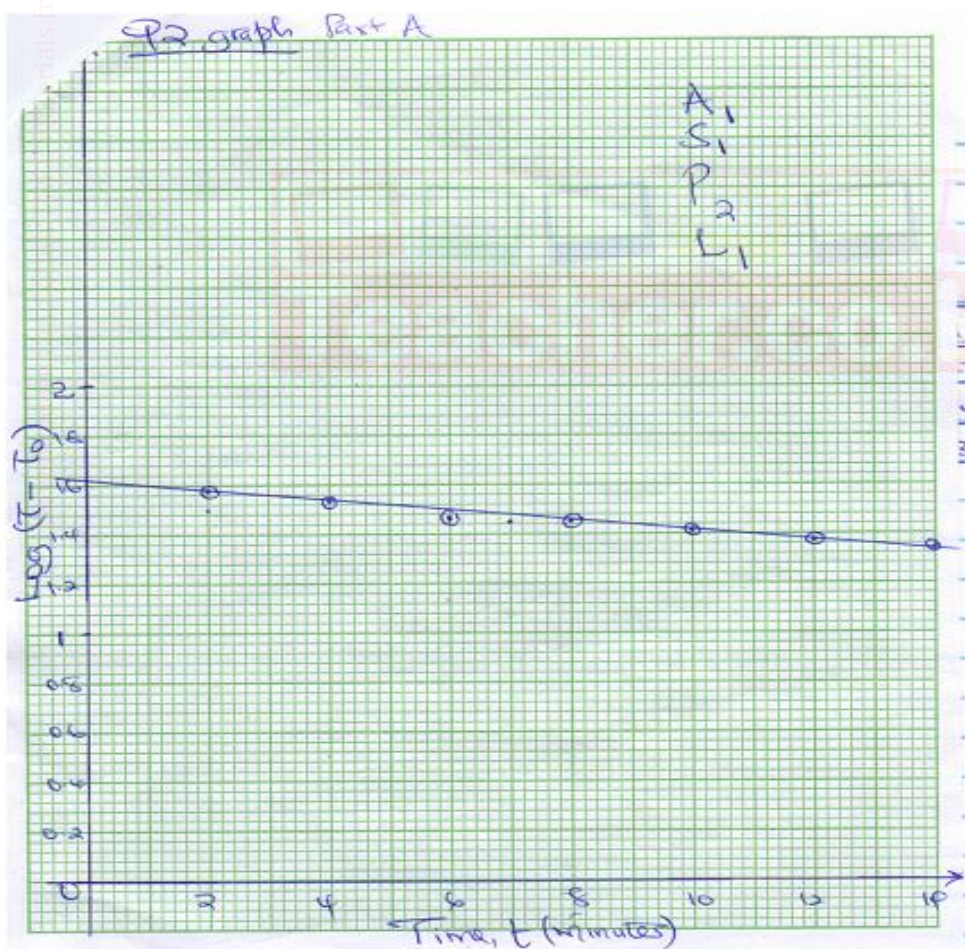
Time t (minutes)	2	4	6	8	10	12	14	
Temperature T(°C)	61.0	57.0	53.0	51.0	49.0	47.0	45.0	(5 marks)
(T - T ₀) (°C)	38.0	34.0	30.0	28.0	26.0	24.0	22.0	(1 mark)
Log (T - T ₀)	1.580	1.531	1.477	1.447	1.415	1.380	1.342	(1 mark)

QUESTION
2
(a)

$T_0 = 23.0^\circ\text{C} \checkmark^1$

Table 2

(b) Graph



(c) $Q = \text{y-intercept.}$
 $= 1.65 \checkmark^1$

(d) $P = \text{antilog } 1.65$
 $= 44.67^\circ\text{C} \checkmark^1$

e) $P = 65 - T_s$
 $T_s = 65 - 44.67 \checkmark^1$
 $= 20.33^\circ\text{C} \checkmark^1$

