
KENYA NATIONAL EXAMINATION COUNCIL

KCSE 2007

PHYSICS PAPER 3 MARKING SCHEME

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24.5.3 Physics Paper 3 (232/3)

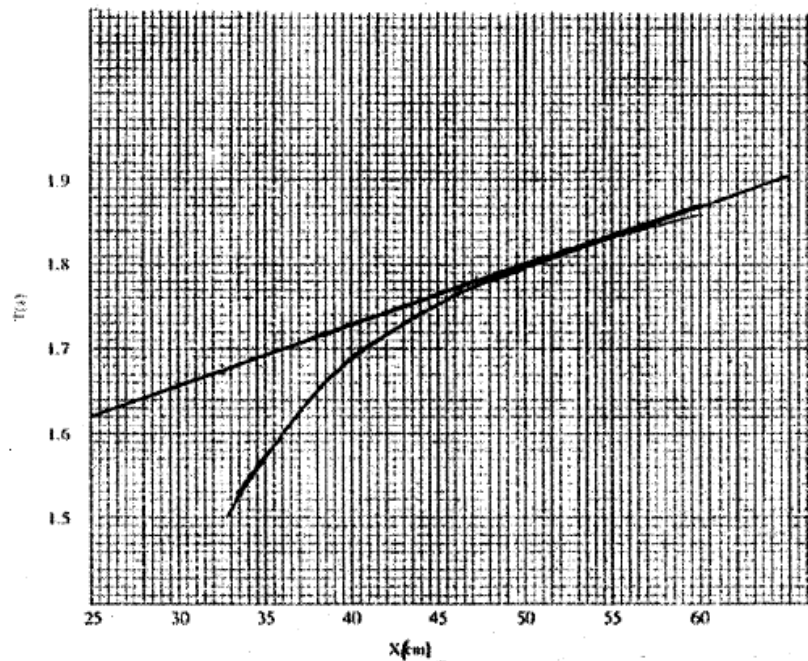
1.

(c)

Distance x (cm)	35	40	45	50	55	60
Time t for 20 Osc(s)	31.8	33.8	35	36	36.8	37.2
Period $T = \frac{t}{20}$ (s)	1.59	1.69	1.75	1.8	1.84	1.86

(8 marks)

(d)



(5 marks)

(e) Slope: tangent at $x = 52\text{cm}$

$$\frac{\Delta T}{\Delta x}$$

$$S = 6.7 \times 10^{-3}$$

(3 marks)

(f)
$$n = 52 \times (6.7 \times 10^{-3})^2$$
$$= 2.33 \times 10^{-3}$$

(2 marks)

(g)
$$P = \frac{\pi^2}{4 \times 2.33 \times 10^{-3}}$$
$$= 1.05 \times 10^3$$

(2 marks)

2.

(b) (i) $E = 3.1\text{ volts}$

(1 mark)

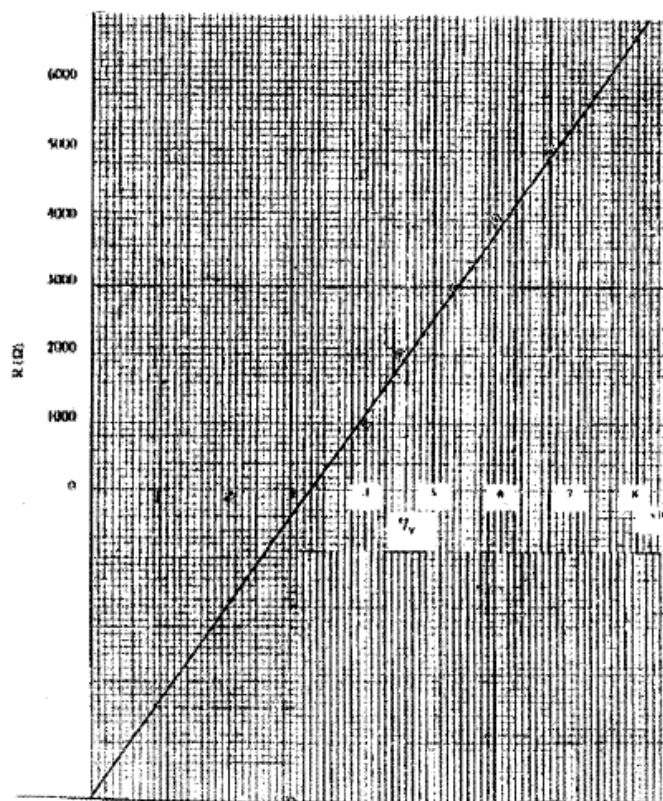
(c)

For range 0 – 5v

$R(\Omega)$	1000	2000	3000	4000	5000	6000
V	2.5	2.2	1.9	1.7	1.5	1.3
V^{-1}	0.4	0.45	0.53	0.59	0.67	0.77

(6 marks)

(d)



(e)
$$\text{Slope} = \frac{\Delta R}{\Delta \frac{1}{V}}$$

$$= \frac{10.5 \times 1000}{0.75} = 14000 \quad (3 \text{ marks})$$

(f)
$$G = \frac{14000}{3.1} = 4.5 \times 10^3 \Omega \quad (2 \text{ marks})$$

(g) (i)
$$\frac{1}{V} = 0.32 (\text{when } R = 0)$$

$$V_0 = 3.1 \quad (1 \text{ mark})$$

(ii)
$$R_g = 4.5 \times 10^3 \Omega \quad (1 \text{ mark})$$

(iii)
$$\frac{G}{R_g} = \frac{4516 \times 10^3}{4.5 \times 10^3}$$

$$= 1.003 \quad (1 \text{ mark})$$