FORM FOUR TERM ONE EXAM 2017

PHYSICS 232/3
MARKING SCHEME

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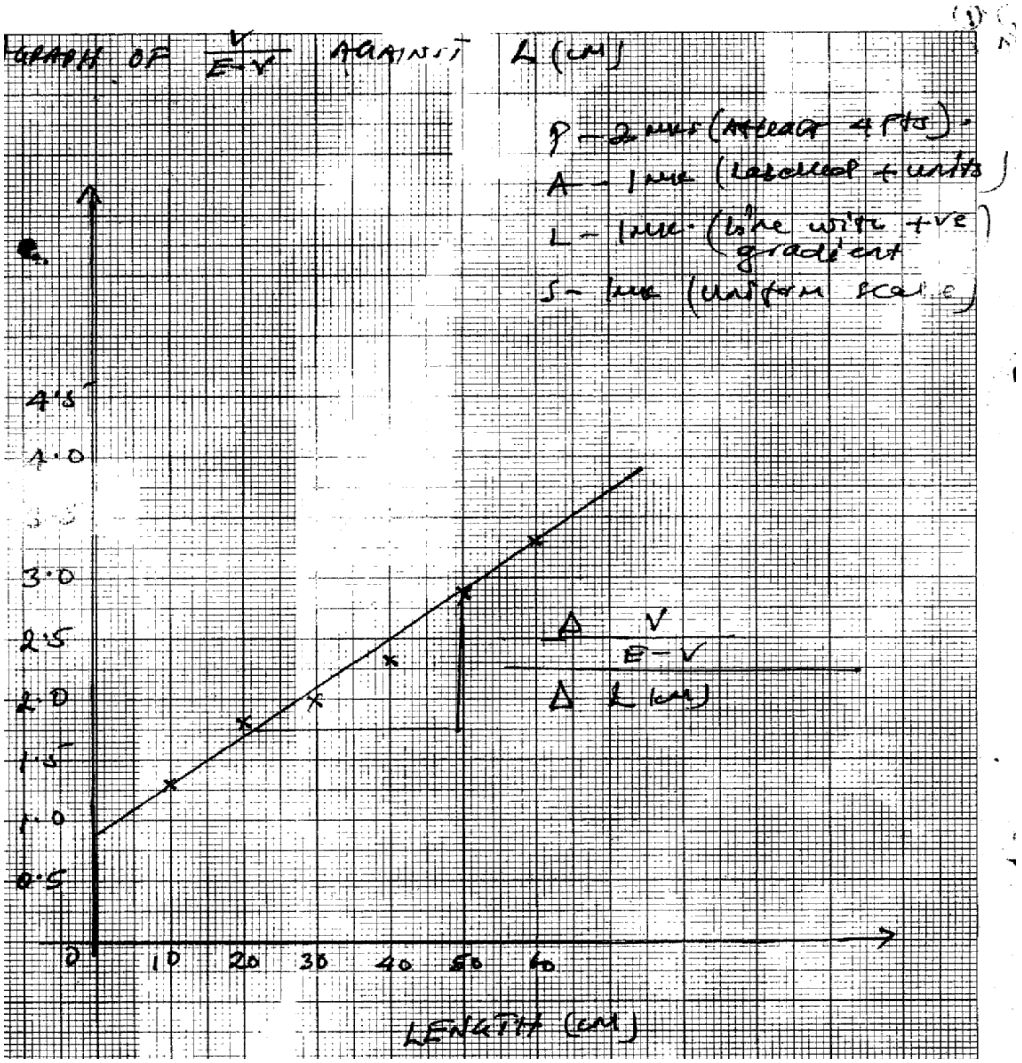
PHYSICS 232/3
MARKING SCHEME

Length L(cm)	70	60	50	40	30	20	√1mk each
Length L(M)	0.70	0.60	0.50	0.40	0.30	0.20	
Time for 20 osc (s)	61.01	56.08	51.36	46.06	39.81	32.80	√1mk each
Period T (s)	3.051	2.804	2.568	2.303	1.1991	1.640	√1mk each
$T^2(s)^2$	9.309	7.862	6.595	5.304	3.960	2.690	√1mk each
T^4	86.66	61.81	43.49	28.13	15.68	7.236	√1mk each

GRAPH OF $T^2(SEC^2)$ AGAINST LENGTH (M)



Correct conversion of length L in M (1mk)

Time for20 oscillations (½mk for each value within range) max of 3mks
Correct evaluation of period (1mk)
Correct evaluation of T^2 (1mk)
(d) Axes labelled with units (1mk)

Scale simple and uniform (1mk)
Each correctly plotted point (½ mk) max 2mks
Plotting
Line passing through at least 3 points correctly plotted (1mk)
(e) $d= 0.34 \times 10^{-3} = 3.4 \times 10^{-4}M$ (1mk)

(f) $\frac{\Delta DT^2}{\Delta DL} = \frac{8.6-2.0}{65-15}$ interval (1mk)

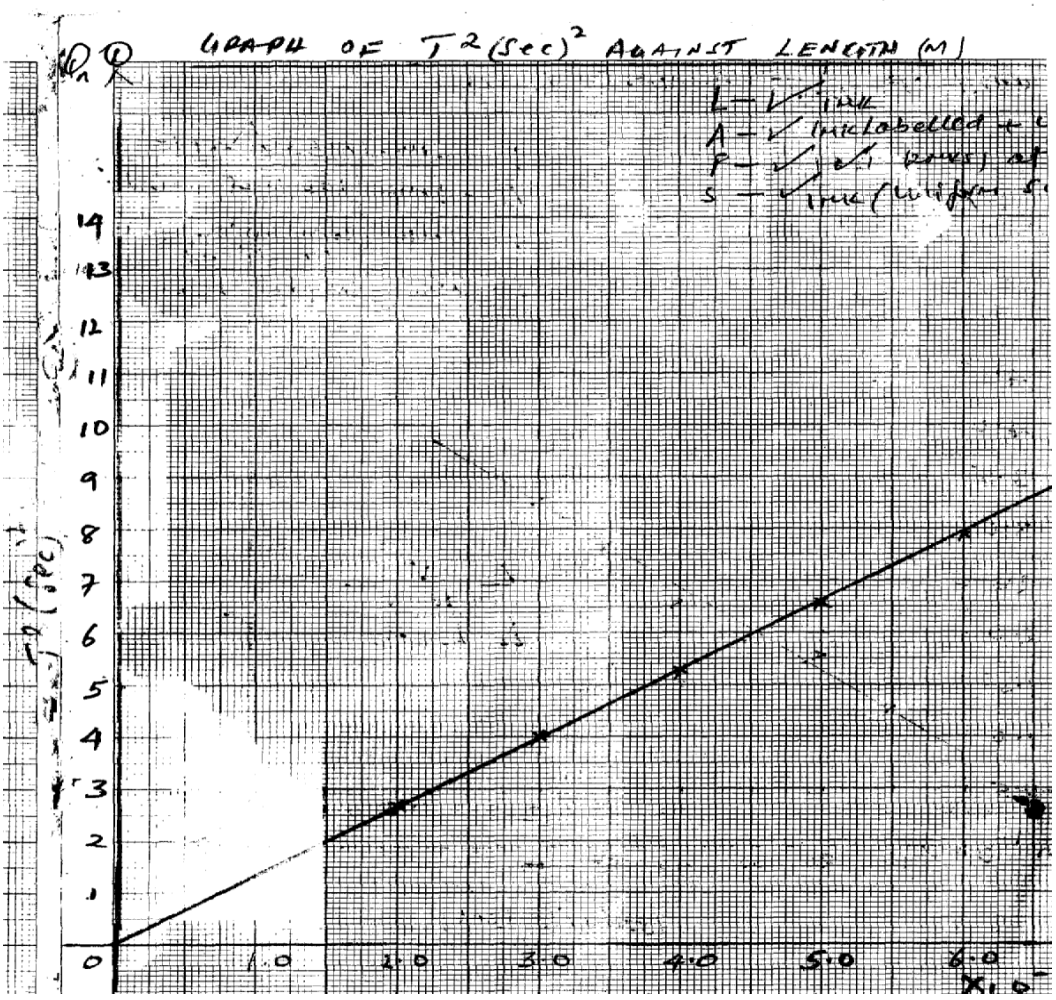
$\frac{6.6}{50} = 0.1320$ evaluation (1mk)

(g) $T2= \frac{32 \Pi^2 L}{Gd}$ $\therefore$ Gradient $=\frac{32\Pi r^2}{G}$

$G=32 \times (3.142)^2 / 3.4 \times 10^{-4} \times 0.132 = \frac{7.03}{10^{-7}}$

Use students value taking note of the student units appropriately

2. A GRAPH OF V/E-V AGAINST L(CM)



2(a) E=3.0±o.1v

(e)

L(cm)	V(volts)	E=V(volts	V/E=V
10	1.70	1.3	1.31
20	1.90	1.1	1.73
30	2.00	1.0	2.00
40	2.10	0.9	2.33
50	2.20	0.8	2.75
60	2.30	0,7	3.29

Table = award 1.5 marks for every com/etc column
Total=3mks
(f) Graph- straight line with intercept on Y =axis with 4 correctly plotted points
Scale-simple and uniform (1mk)
Straight line- 1mk
Plotting -2mks for each line
(f) Slope $= \frac{\Delta V/E-V}{\Delta L}$ shown on the graph (1mk)
=1.1/30 (1mk)
$=0.037cm^{-1}$ answer with units
(h) From y=mx+c
Slope =KI, 0.037 (candidate value) 1mk
Y- intercept=K2=0.92±0.01 (candidate value)
(i) R= 10/4k2= 2.67 correct answer (1mk)