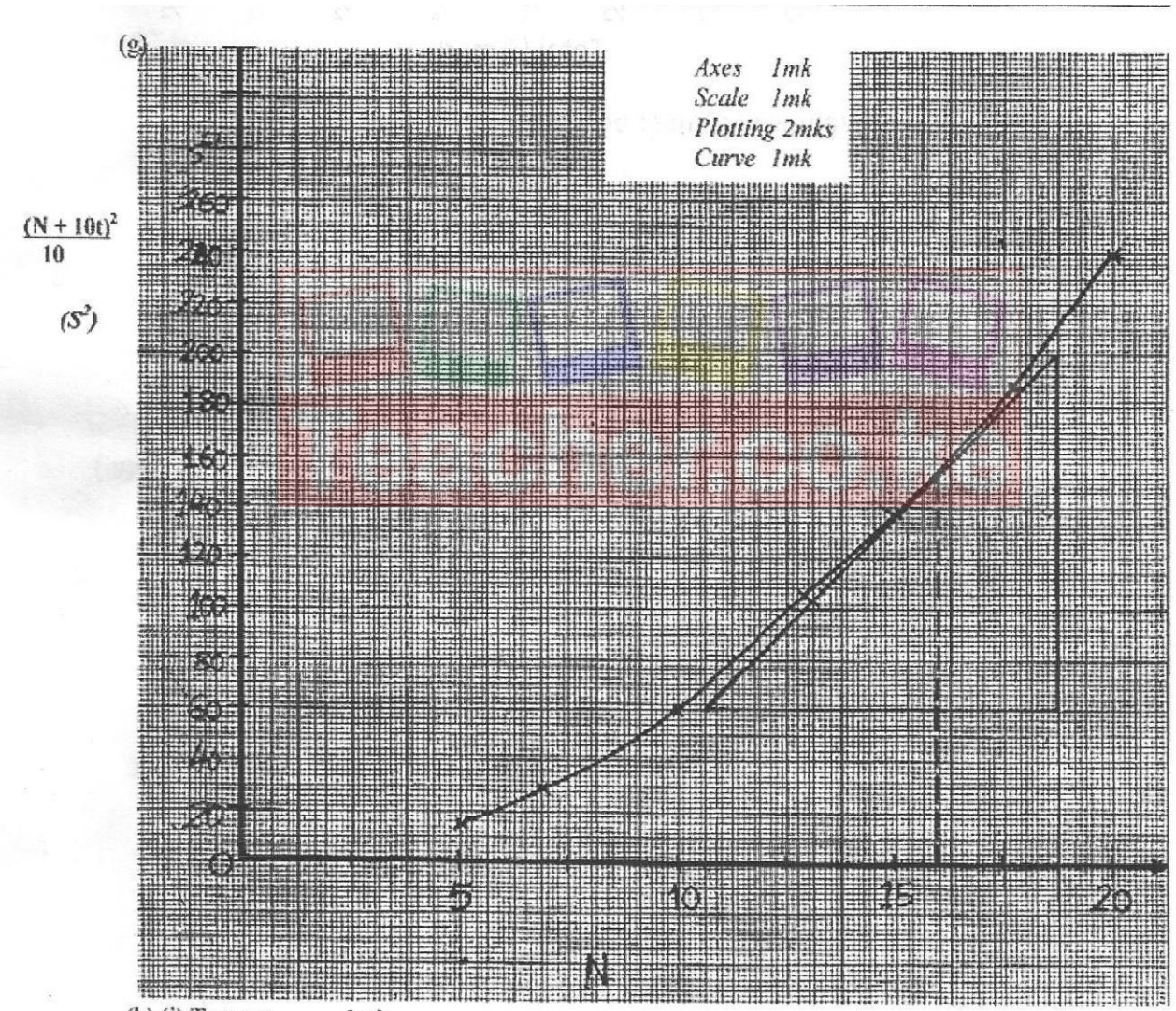
PHYSICS 232/3
MARKING SCHEME

1. (b) Lo=60±10mm (½ mk)
(c) L1=120±10mm(½ mk)
(d) L=600
=60mm
=6cm (1mk)
(e) M=100±5g (1mk(
(f)

Oscillations,N	5	7	10	13	15	18	20	
t(s)	3.46	4.97	7.06	9.27	10.59	12.54	14.10	5mks
$\frac{(N+10t)}{10}$	3.806	5.467	7.766	10.20	11.65	13.80	15.51	1mk
$\frac{(N+10t)}{10}(S)^2$	14.48	29.90	60.31	104.0	135.7	190.3	240.6	1mk

(g)



(h) (i) Tangent 1mk
$= \frac{15.5 - 0}{8.2 - 6.5}$ (1mk)
$= 9.12\ S^2$ (1mk)
(ii) $K = \frac{100 \times 9.12\sqrt{}}{13 \times 6} = 11.70\sqrt{}$ (2mks) $Kg\ S^2\ m^{-1}$

2.(a) f_o=10cm

Table 2

L(cm)	2	3	4	5	6	7	8	9
X(cm)								
$^1/_L(cm^{-1})$								

½ ½ ½ ½ ½ ½ ½ ½

Total (4mks)

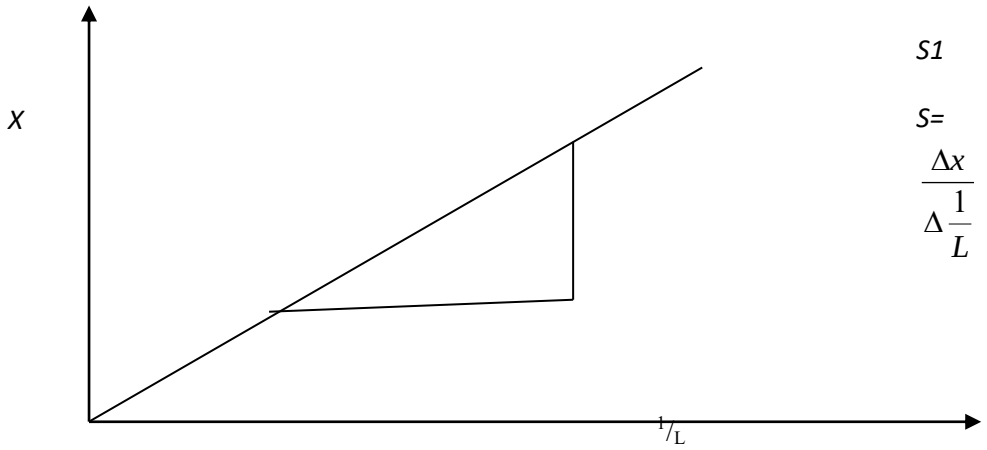
Values of x must be up to 1d.p

(b) Expected graph

P2

S1

S= $\frac{\Delta x}{\Delta \frac{1}{L}}$



(c) (Triangle must be shown of the graph $gradient \frac{\Delta x}{\Delta \frac{1}{L}} h$ (3mks)

(d) $x = \frac{f^2}{L} + \frac{L(f+\ell)}{L}$

f^2 is the gradient

hence f= $\sqrt{slope}$

slope from the graph √3

Part B

(ii) E=1.5±0.1v√1

(iii) V=1.4±0.1v√1

I=0.12A±0.001A

(iv) E-V=1r

0.1=0.12 x r√1

r = 0.1 =0.83Ω√1
0.12