

**MARKING SCHEME      TERM 1**

**232/3 FORM 3 PHYSICS PRACTICAL**

Table

|                                   |      |      |      |      |      |      |      |      |      |        |
|-----------------------------------|------|------|------|------|------|------|------|------|------|--------|
| dcm                               | 40   | 45   | 50   | 55   | 60   | 65   | 70   | 75   | 80   |        |
| t(s)                              | 30   | 29   | 28   | 27   | 26   | 25   | 24   | 23   | 22   | ✓ 4Mks |
| T(s)                              | 1.50 | 1.45 | 1.40 | 1.35 | 1.30 | 1.25 | 1.20 | 1.15 | 1.10 | ✓ 1mk  |
| T <sup>2</sup> (s <sup>2</sup> )  | 2.25 | 2.10 | 1.96 | 1.82 | 1.69 | 1.56 | 1.44 | 1.32 | 1.21 | ✓ 1mk  |
| d <sup>2</sup> (cm <sup>2</sup> ) | 1600 | 2025 | 2500 | 3025 | 3600 | 4225 | 4900 | 5625 | 6400 | ✓ 1mk  |

Row 2(t-value)

0-1 values correct -0mk

2-3 values correct 1mk

4-5 values correct 2mks

6-7 values correct 3mks

8-9 values correct 4mks

g) slope  $= \frac{\Delta T^2}{\Delta d^2} = \frac{(1.44-1.96)}{(4900-2500)}$  1mrk

h)( i )  $T^2 = \frac{3d^2}{M} + C$

$\frac{3}{M} = -0.00022 \text{ s}^2/\text{cm}^2$  1mrk

M =  $\frac{3}{0.00022}$  1mrk

$= -13846.15 \text{ cm}^2/\text{s}^2$  1mrk

(ii) C=y – intercept 1mrk

Y intercept =  $2.55 \text{ s}^2$

C =  $2.55 \text{ s}^2$  1mrk

## MARKING SCHEME

### QUESTION 2

#### PART A

a)  $N=83$  1mrk

b)  $D=0.0116\text{m}(4 \text{ d.p}) \pm 0.0002$  1mrk

c)  $d=6.3 \times 10^{-4}\text{m}$  1mrk

d)  $N = \frac{0.4D}{dM}$   $\frac{1}{2}$  mrk

$m = \frac{0.4D}{dN} = \frac{0.4 \times 0.0116}{6.3 \times 10^{-4} \times 83}$  1mrk  $= 0.0887$  4 d.p  $\frac{1}{2}$  mrk

e)  $L_o = 50.0$

f)

|                           |    |        |        |        |        |        |        |        |        |        |        |       |
|---------------------------|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| W(N)                      | 0  | 0.1    | 0.2    | 0.3    | 0.4    | 0.5    | 0.6    | 0.7    | 0.8    | 0.9    | 1.0    | ✓ 1mk |
| L(cm)                     | 50 | 51.2   | 52.4   | 53.6   | 54.8   | 56.0   | 57.2   | 58.4   | 59.6   | 60.8   | 62.0   | ✓ 1mk |
| E(cm)                     | 0  | 1.2    | 2.4    | 3.6    | 4.8    | 6.0    | 7.2    | 8.4    | 9.6    | 10.8   | 12.0   | ✓ 1mk |
| $1/e$<br>$\text{cm}^{-1}$ | 0  | 0.8333 | 0.4166 | 0.2777 | 0.2083 | 0.1666 | 0.1389 | 0.1190 | 0.1042 | 0.0926 | 0.0833 | ✓ 1mk |

g)- Scale=1mk –Appropriate scale

-Axes =1mk-well labelled

-plots =2mks 8-11 plots correctly plotted

4-7 correctly plotted 1mk

-Smooth curve-1mrk

h) slope  $\frac{5.5-3.5}{2.2-1.4} = \frac{2}{0.8} = 2.5\text{cm}$  1mrk

i)  $T = \frac{m(5+60)^2}{-255}$  1mrk

$T = \frac{0.0887(2.5+60)^2}{-255}$  1mrk  $= 1.3588\text{N}^2\text{cm}^2$  1mrk





