**JOINT EXAMINATION**

**FORM 3PP3 PHYSICS**

**TERM 3-2023 (OCTOBER)**

**MARKING SCHEME**

1. a) L0 - ½mk answer to 1d.p

½mk correct unit (cm)

b. ii) (8mks)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Mass (g) | 0 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| Weight (force) N |  |  |  |  |  |  |  |  |  |  |
| Reading, L cm |  |  |  |  |  |  |  |  |  |  |
| Extension, e(cm) |  | 1.0 | 2.6 | 4.8 | 6.3 | 8.1 | 10.2 | 12.3 | 14.2 | 16.4 |

2mks@ Row (force) – correct evaluation and substitution

F = mg

L to 1 d.p

e correct (L-L0) to 1 d.p

v) Graph of Force(N) vs extension, e (cm). (5mks)

Correct labelling of axis – 1mk

Scale – simple and uniform – 1mk

Plotting (2mks) (7-10 points) – 2mks

(5-6 points) – 1mk

(0-4 points) – 0 mk

Line – straight line passing through the origin – 1mk

vi) Slope, s=$\frac{∆f}{∆e}$ = 0.8N/cm $\pm 0.01$ (3mk)

 Clear points from the graph - 1mk

Correct evaluation - 1mk

Answer - ½mk

Correct unit - ½mk

 vii) Correct substitution of k=se - 1mk

Correct evaluation - 1mk

Answer - ½mk

Correct unit - ½mk

1. a)
2. E = 3.0$\pm 0.1 to 1 d.p$ - ½mk

Correct unit - ½mk

1. V = 2.5v$\pm $ 0.1 1 d.p (1mk) and correct unit

I = 0.20A $\pm $0.02 2 d.p (1mk) and correct unit

1. V is less than E due to the lost voltage; voltage against the internal resistance of the cell. (2mk)
2. V1 = 1.4V$\pm $0.1 Correct reading to 1 d.p - ½mk

 Correct unit - ½mk

1. R=$\frac{V\_{1}}{I}=10Ω\pm $1

Correct substitution - ½mk

Correct evaluation - ½mk

Answer in 4s.f - ½mk

Correct unit - ½mk

b (i) d=0.36mm $\pm 0.01 to 2 d.p (1mk)$

 d= in metres – correct conversion to 5 d.p (1mk)

 (iii) I = 0.10A$\pm 0.02$ Correct reading - ½mk

 Correct unit - ½mk

 iv)V2 = 1.9v $\pm $ 0.1 Correct reading - ½mk

 Correct unit - ½mk

v) R=$\frac{V\_{2}}{I}$ Correct substitution - 1mk

Correct evaluation - 1mk

Answer in 4s.f - ½mk

Correct unit - ½mk

1. K=$\frac{R}{1 metre}$Correct evaluation - 1mk

Answer - ½mk 4s.f

Correct unit - ½mk (Ωm-1)

1. Q= $\frac{πkd^{2}}{4}$ Correct evaluation - 1mk

Answer in 4s.f - ½mk

Correct unit - ½mk (Ωm)