**PAVEMENT NATIONAL EXAMINATION**

**FORM IV**

**OPENER EXAMINATION 2021/2022 PHYSICS PAPER 3 MS**

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Q.1 (i) | d = 0.20 + 0.01 m conversion to metre;  accuracy | 1 mark  1 mark |
| (f) | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | ucm | 35 | 40 | 45 | 50 | 55 | 60 | 70 | | vcn | 46.7 | 40.0 | 36.0 | 33.3 | 31.4 | 30.0 | 28.0 | | uvcm2 | 1635 | 1600 | 1620 | 1665 | 1727 | 1800 | 1960 | | u +vcm | 81.7 | 80.0 | 81.0 | 83.3 | 86.4 | 90.0 | 98.0 | | 5mks  1mk  1mk |
| G(i) | 576EE925 | 2mks  1mk  1mk  1mk |
|  | Slope = 1600 – 0;  80 – 0  = 20cm; + 2 | 1mk  1mk |
|  | Slope = Focal length;  = 20cm; | 1mk  1mk |
|  | d is also the focal length;  if the object is placed at the principal focus, the rays emerge parallel. The rays are then reflected by the plane mirror along the same path and hence the image is next to the object cross-wire; | 1mk  1mk |
|  |  | **20 mks** |
| Q.2. | (b) Lo = 56.2cm (accept strudents value); | 1mk |
|  | (d)   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Mass(g) | 50 | 100 | 120 | 150 | 200 | 250 | | L(cm) | 58.2 | 60.3 | 61.1 | 62.2 | 64.8 | 66.6 | | e =L-L0(cm) | 2.0 | 4.1 | 4.9 | 6.0 | 8.6 | 10.6 | | time , t for 20 oscillations (s) | 6.70 | 8.74 | 9.25 | 10.25 | 11.82 | 13.20 | | log t | 0.8261 | 0.9415 | 0.9661 | 1.0107 | 1.0726 | 1.1212 | | log e | 0.3010 | 0.6128 | 0.6902 | 0.7782 | 0.9345 | 1.0253 | | 1 mk  2mks  3mks  1mk  1mk  1mk |
|  |  |  |
|  | 662394E2 | 1mk  1mk  2mks  1mk |
|  | log t intercept = 0.67;  0.67 = ½ log  log 4.677 = log ½  ½  = 4.677  A=7.219; | 1mk  1mk |
|  |  |  |
| (b) | |  |  |  | | --- | --- | --- | | **Current** | **Voltage** | **Resistance** | | 0.04  0.06  0.08 | 0.15  0.20  0.30 | 3.75  3.33  3.75 | | Readings 2mks  Resistance 1mk |
| ( c) | Average resistance = 3.75 + 3.33 + 3.75  3  = 3.61Ω; | 1mk |
|  | **GRAND TOTAL** | **40MKS** |