**CATHOLIC DIOCESE OF KAKAMEGA EVALUATION TEST**

**AUG./SEPT. 2022**

**232/3 PHYSICS PAPER 3 MARKING SCHEME**

**1. (b) (i)** ho = 92.00cm = 920.0mm

 **(ii)** h = 83.00cm = 830.0mm

**(iii)** h = 90.00cm = 900.0mm

* Candidate’s own correct evaluation for both values of depression, d = (ho-h)(mm) 1mk
* Log L 2.954 2.778; both values correct 1mk
* Candidate’s own correct evaluation for both values of log d 1mk

**(c)** - Correct substitution 1mk

 **-** Correct evaluation to at least 4s.f or exact. 1mk

**(d)** - Correct substitution of s ½ mk

 **-** Correct evaluation to at least 4s.f or exact. ½ mk

**(e)** - Correct substitution of G and y ½ mk

 **-** Correct evaluation to at least 4s.f or exact. ½ mk

 **(f)** fo = 20.0 ± 1.0cm 1mk

 **(h)** - According to fo used by candidates in the centre to 1d.p 2mks

- Candidate’s own correct evaluation of both values of (x+y)/xy 1mk

 **(i) -** Principle of averaging 1mk

 - Correct evaluation to at least 4s.f or exact. 1 mk

 **(j)** - Correct evaluation of 1/fo 1mk

 - They are equal 1 mk /almost equal

**(k)** - Correct substitution of 1/fo and x 1mk

 **-** Correct evaluation to at least 4s.f or exact. 1mk

**2. (a)** Eo = 3.1 ± 0.1V 1mk

 **(c)** V = 0.4 ± 0.1V 1mk

**(d)** - Correct substitution V and x 1mk

 **-** Correct evaluation to at least 4s.f or exact. 1mk

**(e)** - Correct substitution of Eo ½ mk

 **-** Correct evaluation of k to at least 4s.f or exact. ½ mk

**(g)** To = 22 – 30 °C 1mk

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Time, t(min) | 2 | 4 | 6 | 8 | 10 | 12 | 14 |
| Temperature, T (°C) | 61 | 57 | 53 | 51 | 49 | 47 | 45 |

 **(h)**

 **- ½** mk for correct value of T max 3 mks.

 **-** Correct evaluation of all values of T – To to at least 4s.f or exact. 1mk

 **-** Correct evaluation of all values of log (T – To) to at least 4s.f or exact.1mk

 **(i)** - Correct labeling of axes:

 Log (T – To) ONLY on y-axis

 Time, t (min) on x-axis A1

 - uniform and simple scale S1

- plotting exact or within one small square ½ mk to max P2. Repeated value treated as one.

- Straight line (drawn using a straight edge) with a negative gradient passing through at least 3 correctly plotted points. L1

 **(j)** - P= y-intercept. evidence from graph ½ mk

 - correct reading ½ mk

 **(k)** - Correct reading of antilog 1 mk

**(l)** - Correct substitution of N. 1mk

**-** Correct evaluation within the range to at least 4s.f or exact with unit. 22 – 30 °C 1mk

 Penalize ½ mk if unit is missing.

 Penalize 1mk if the unit is incorrect