SCHOOL BASED FORM 4 EXAM JULY-AUGUST 2017

PAPER 3

PRACTICAL

MARKING SCHEME

1. (b) d = 0.28± 0.01 mm (½ mk)
   d = 0.00028m 5 d.p places must (½ mk)

   (c)

L (m)	0.1	0.3	0.5	0.7	0.9	
p.d (v)	2.7	2.6	2.5	2.7	2.8	±0.1 1 mark of each correct max 2 marks
I (A)	0.38	0.22	0.16	0.12	0.10	±0.01 1 mark for each correct max 2 marks
R = $\frac{V}{I}(\Omega)$	7.11	11.82	16.63	22.50	28.00	Correct evaluation 2 d.p must all correct 1 mk 4 correct ½ less than 4 zer0
$\frac{1}{I}$ (A^{-1})	2.63	4.55	6.25	8.33	10.00	1 mark for both R and $\frac{1}{I}$

   Total for table 6 marks

   (g) (i) E = $\frac{1}{Slope\ (s)}$ (1 mark)

   = $\frac{1}{0.312}$ Correct sub (1 mk)

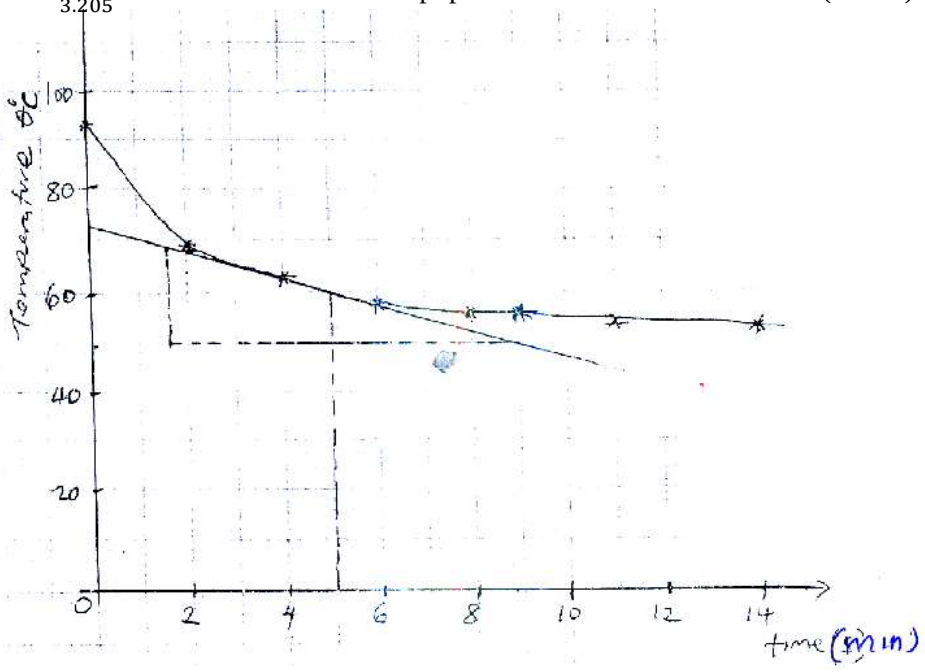
   = 3.205V Correct evaluation to 3 d.p Unit must(1 mk), no unit (½ mk), wrong units (zero)

   (ii) $\frac{V}{E}$ = Intercept of vertical axis. (1 mk)

   V x $\frac{1}{E}$ = 1.4

   V x 3.205 = 1.4 Correct sub, students own values 1 mk

   V = $\frac{1.4}{3.205}$ Correct evaluation to 3 d.p. places unit must 1 mk No units (½ mk) wrong units (zero)



   Awarding of marks for graph $\frac{1}{I}$ vs R.

   ✓ Labelling of axes both quantity and unit. (1 mk)
   ✓ Scale should be simple, uniform and accommodative. (1 mk)
   ✓ Plotting – correctly plotted point, student own value ½ max (2 mks)
   ✓ Line – A straight line with positive gradient (1 mk)
   (Total for graph 5 marks)

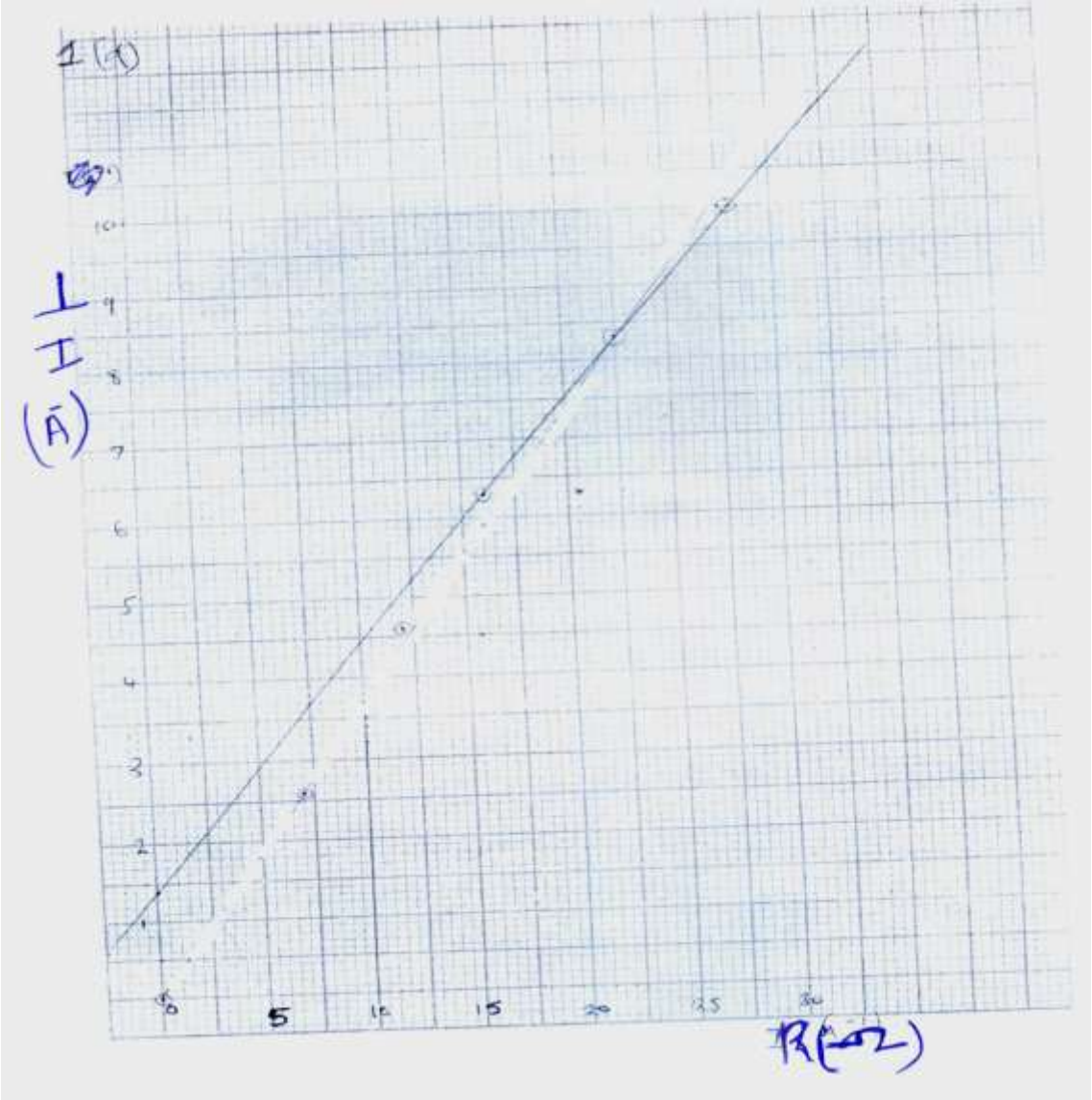
QUESTION 2

T_{max} = 95.0± 3^0C 1 mk 1 d.p must

(iv)

Time (min)	0	2	4	6	8	10	12
Temperature (^{0}C)	93.0	69.0	63.0	58.0	56.0	54.0	53.0

± 2^0C any five correct 5 mk 1 d.p must



Awarding of marks for graph of Temp vs Time

- ✓ Labelling of axes – both quantity and unit – 1mk
- ✓ Scale – Simple uniform and accommodative.
- ✓ Plotting – Correctly plotted points own values ½ mk

  Max 2 mks
- ✓ Curve – Smooth curve passing through atleast 3 correctly plotted points – with –ve source.

(v) Rate of cooling at 5 min = Gradient of tangent at that point (½ mk), showing the tangent at the graph.

Gradient = $\frac{\Delta y}{\Delta x}$

= $\frac{69-50}{8.8-1.5}$

y interval 1 mk

x interval 1 mk

= _____c/min correct evaluation 3 d.p units must 1 mk

PART B

u (cm)	30	35	40	
v (cm)	60	46.7	40.0	± 2.0 ½ mark for any correct max 1 mk
x = $\frac{v}{u}$	2.50	1.33	1.00	± 2.0 ½ mk for 2 any correct max 1 mk
y = $\frac{v}{(x+1)(cm)}$	20.00	20.04	20.00	All correct 1 mk

y = $\frac{20.00+20.04+20.00}{3}$ 1 mk for showing averaging

= 20.01

= 20.0±0.2 1 1mk for evaluation.