Pg 2 UTEC - UACE - 2022 P510/3 GUIDE

Qn 2 A_1 - Width, t Measured 3-times PHYSICS. $\frac{1}{2}$

A_2 - Value of av. t = (6.00 — 6.80), cm. Method of av. t 1 $1\frac{1}{2}$

Unit, $\frac{1}{2}$

$\alpha(^\circ)$	$\theta(^\circ)$	$\beta(^\circ)$	d(cm)	$\varphi(^\circ)$ $\frac{1}{2}(\alpha+\theta)$	$\cos\beta$	$d\cos\beta$	$(\varphi-\beta)(^\circ)$	$\sin(\varphi-\beta)$
20	$\alpha \pm 2$	11 — 14	0.7 — 1.3					
25		14 — 18	0.9 — 1.5					
30		17 — 21	1.0 — 1.6					
35		19 — 25	1.2 — 1.8					
40		22 — 28	1.6 — 2.3					
50		26 — 34	2.0 — 3.0					

↳ Pdt Check

B_1 - Columnar table labelled, α, θ, β, d, φ, $\cos\beta$, $d\cos\beta$, $(\varphi-\beta)$, $\sin(\varphi-\beta)$. Any 2 - $\frac{1}{2}$ @ $\frac{1}{2}$ $2\frac{1}{2}$

B_2 - Indication of Units Using Brackets. Any 2 - $\frac{1}{2}$ @ $\frac{1}{2}$ $2\frac{1}{2}$

B_3 - Values of θ ↑sing - (0dp), $\theta = \alpha \pm 2$. @ $\frac{1}{2}$ 3

B_4 - Values of β ↑sing - (0dp), @ $\frac{1}{2}$ 3

B_5 - Values of d ↑sing - 1dp, @ $\frac{1}{2}$ 3

B_6 - Values of φ, Corr. calc. from $\frac{1}{2}(\alpha+\theta)$ - (0dp) @ $\frac{1}{2}$ 3

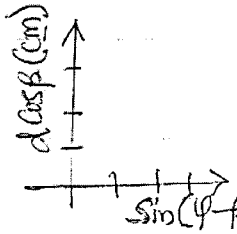
B_7 - Values of $\cos\beta$ ↓sing, < (3dp) @ $\frac{1}{2}$ 3

B_8 - Values of $d\cos\beta$, ↑sing to - (1dp) Any two $\frac{1}{2}$ $1\frac{1}{2}$

B_9 - Values of $(\varphi-\beta)$ ↑sing to - (0dp) Any two $\frac{1}{2}$ $1\frac{1}{2}$

B_{10} - Values of $\sin(\varphi-\beta)$ ↑sing to - (3dp). Any two $\frac{1}{2}$ $1\frac{1}{2}$

$26\frac{1}{2}$



G_1 - Title, A graph of $d\cos\beta$ against $\sin(\varphi-\beta)$ 1

G_2 - Drawing of axes with arrows - 1
- Labelling of axes with Units - @ $\frac{1}{2}$ 2

No Trace.

G_3 - Suitable, Conv. & Corr. scale Usage. @ 1 2

Expt'l values Award, 0 but award subsequent work.

G_4 - Corr. plotting within $\frac{1}{2}$ small sq. radius @ $\frac{1}{2}$ 3

G_5 - Best line of fit 1

G_6 - Indication of Triangle for slope 1

10

C_1 - Calc. of Slope, x

- Corr. Substn - - - 1
- Corr. Arithm. (2dp) - - - 1
- Accuracy; (6.00 — 6.80) - - 1
- Unit cm. - - - $\frac{1}{2}$

$3\frac{1}{2}$

Total = 40 Marks

Pg4 UTEC – GUIDES – 2022.

Qn3 UACE – P501/3, PHYSICS PRACTICAL:

A_1 – Value of $E_o = (1.30 - 1.70)$, V — m – 3dp, $\frac{1}{2}$, $\frac{1}{2}$ @ $1\frac{1}{2}$

A_2 – Value of $l_o = (60.0 - 76.0)$ cm, — 1dp, $\frac{1}{2}$, $\frac{1}{2}$ @ $1\frac{1}{2}$

A_3 – Calc. of $K = \frac{E_o}{l_o \times R_s}$, $R = 1\Omega$.

✓ Corr. Subst in S.I ✓

✓ Corr. Arithmetic $(1.70 - 2.50)$ ✓

✓ Unit, Am^{-1}. ✓ 3

06

I_o (A)	l (cm).	I_r (A)
0.15	4.0 — 9.0	
0.20	6.0 — 12.0	
0.26	8.0 — 16.0	
0.30	12.0 — 20.0	
0.36	15.0 — 24.0	
0.40	18.0 — 28.0	
0.46	20.0 — 32.0	
0.50	24.0 — 36.0	

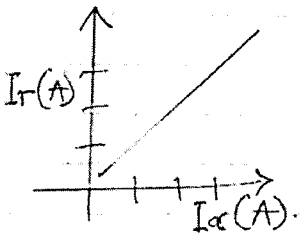
B_1 – Column table labelled I_o, l (cm), I_r : $1\frac{1}{2}$

B_2 – Indication of Units A, cm or m, A. $1\frac{1}{2}$

B_3 – 8, Using values of l, 1dp in cm, 3dp in m. 8

B_4 – 8, Values of I_r, Corr. calc from $I_r = Kl$. 8

19



G_1 – Title, A graph of I_r against I_o. 1

G_2 – Drawing of axes with arrows – 1
– Labelling of axes with Units. @$\frac{1}{2}$ 2

G_3 – Suitable, Convinient & Corr. Usage @ 1 2

G_4 – Corr. Plotting in $\frac{1}{2}$ small sq. radius @$\frac{1}{2}$ 4

G_5 – Best line of fit. 1

G_6 – Indication of R.A.T for slope. 1

11.

C_1 – Calc. of slope S,

✓ Corr. Subst n 1

✓ Corr. Arith-m 1

✓ Accuracy. 1 3

C_2 – Comment: 1

04

TOTAL MARKS, 40.

END.

Qn2 A_1 - Width, t Measured 3-times | $\frac{1}{2}$

A_2 - Value of av. t = (6.00 − 6.80), cm. Method of av. t 1, Unit $\frac{1}{2}$ | $1\frac{1}{2}$

$\varphi = \frac{1}{2}(\alpha + \theta)$

α (°)	θ (°)	β (°)	d (cm)	φ (°)	cos β	d cos β	(φ − β) (°)	sin (φ − β)
20	α ± 2	11 − 14	0.7 − 1.3	15 −	0.970	0.7		
25	23 − 27	14 − 18	0.9 − 1.5	24	0.970		10	
30	28 − 32	17 − 21	1.0 − 1.6					
35	33 − 37	19 − 25	1.2 − 1.8					
40	38 − 42	22 − 28	1.6 − 2.3					
50	48 − 52	26 − 34	2.0 − 3.0	22 − 51	0.829	2.8	17	0.956 − 0.29

0 dp (φ); all decreasing (cos β); 1 dp check (d cos β)

Cos β is decreasing, skipped then stopped then

A+A #

B_1 - Columnar table labelled, α, θ, β, d, φ, cos β, d cos β, (φ − β), sin (φ − β). Any 2 − ½ @ ½ | $2\frac{1}{2}$

B_2 - Indication of Units Using Brackets. Any 2 − ½ @ ½ | $2\frac{1}{2}$

B_3 - Values of θ ↑sing − (0 dp), θ = α ± 2. @ ½ | 3

B_4 - Values of β ↑sing − (0 dp), @ ½ | 3

B_5 - Values of d ↑sing − 1 dp, @ ½ | 3

B_6 - Values of φ, Corr. calc. from $\frac{1}{2}(\alpha + \theta)$ − (0 dp) @ ½ | 3

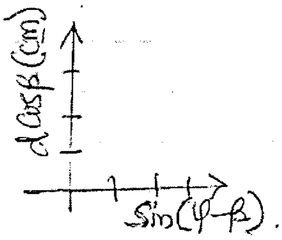
B_7 - Values of cos β ↓sing, − (3 dp) @ ½ | 3

B_8 - Values of d cos β, ↑sing to − (1 dp) Any two ½ | $1\frac{1}{2}$

B_9 - Values of (φ − β) ↑sing to − (0 dp) Any two ½ | $1\frac{1}{2}$

B_{10} - Values of sin (φ − β) ↑sing to − (3 dp). Any two ½ | $1\frac{1}{2}$

| $26\frac{1}{2}$



G_1 - Title, A graph of d cos β against sin (φ − β) | 1

G_2 - Drawing of axes with arrows − 1; − Labelling of axes with Units − @ ½ | 2

G_3 - Suitable, Conv. & Corr. scale Usage @ 1 | 2

G_4 - Corr. plotting within ± small sq. radius @ ½ | 3

G_5 - Best line of fit | 1

G_6 - Indication of Triangle for Slope | 1

| 10

No Trace.
Exptal values Award 0 But award subsequent work.

C_1 - Calc. of Slope, x
- Corr. Subtn − − 1
- Corr. Arithm. (2 dp) − − − 1
- Accuracy; (6.00 − 6.80) − − 1
- Unit cm. − − ½

| $3\frac{1}{2}$

Total = 40 Marks

27, 9, 29, 36

Qn3 UTEC – GUIDES – 2022.
UACE – P510/3, PHYSICS PRACTICAL:

A_1 – Value of $E_o = (1.30 - 1.70)$, V — m — 3dp — ✓, ½ — @1½
A_2 – Value of $l_o = (60.0 - 76.0)$ cm, — 1dp, ✓, ½ — @1½
A_3 – Calc. of $K = \frac{E_o}{l_o \times R_s}$, $R = 1\Omega$.
✓ Corr. Subst in S.I ✓
✓ Corr. Arithmetic $(1.70 - 2.50)$ ✓
✓ Unit, Am^{-1}. ✓ — 3

06

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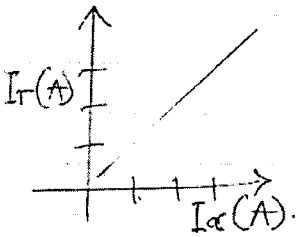
0.46	20.0 — 32.0	
0.50	24.0 — 36.0	

B_1 – Athumman table labelled I_a, l (cm), I_r — 1½
B_2 – Indication of Units A, cm & m, A. — 1½
B_3 – 8, Using values of l, 1dp in cm, 3dp in m. — 8
B_4 – 8, Values of I_r, Corr. calc from $I_r = Kl$. — 8

19



G_1 – Title, A graph of I_r against I_a. — 1
G_2 – Drawing of axes with arrows – 1
– Labelling of axes with Units. @½ — 2
G_3 – Suitable, Convinient & Corr. Usage. @1 — 2
G_4 – Corr. plotting in ½ small sq. radius @½ — 4
G_5 – Best line of fit. — 1
G_6 – Indication of R.A.T for slope. — 1

11

C_1 – Calc. of slope S,
✓ Corr. Subtn — 1
✓ Corr. Arithm. — 1
✓ Accuracy. — 1 — 3

C_2 – Comment: — 1

04

TOTAL MARKS, 40.

END.

Lyakata