

MATIGO MOCKS 2024 UCE PHYSICS PAPER 2 SCORE GUIDE Item 2

	Basis of assessment	Code	Criteria	Score		Max score
1	Aim of the experiment	A	Properly stated aim <ul style="list-style-type: none"> To determine the critical angle of the glass block provided 	2	A 2	2
			Partially stated aim <ul style="list-style-type: none"> To determine the critical angle 	1	A 1	
			No or incorrect aim	0	A 0	
2	Variables of the experiment	V	Correct independent variables stated <ul style="list-style-type: none"> Angle of incidence 	1	V _I 1	3
			No or incorrect independent variable stated	0	V _I 0	
			1 Correct dependent variable stated <ul style="list-style-type: none"> Angle of refraction 	1	V _D 1	
			No or incorrect dependent variable stated	0	V _D 0	
			1 Correct control variables stated <ul style="list-style-type: none"> Light intensity in the room Parallax errors 	1	V _c 1	
			No or incorrect control variable stated	0	V _c 0	
3	Hypothesis	H	Correct Hypothesis stated <ul style="list-style-type: none"> Critical angle is 47°-49° 	1	H 1	1
			No or incorrect Hypothesis stated	0	H 0	
4	List of apparatus and materials	A _p	All <u>relevant</u> apparatus and materials stated — Refer to the set up	2	A _p 2	2
			<u>Partially relevant</u> apparatus and materials stated	1	A _p 1	
			No or irrelevant apparatus and materials stated	0	A _p 0	
5	Drawing of experiment setup	D	Correct or complete well drawn and labelled	2	D 2	2

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			Partially labelled	1	D 1	
			No or incorrect or wrong drawing	0	D 0	
6	Procedure of the experiment and setup	P _R	<ul style="list-style-type: none"> All relevant procedures of the experiment and setup stated a) White piece of paper fixed on soft board using thumb pins b) Glass block placed with its wider surface on piece of paper c) Its outline is traced d) Normal drawn at one end e) Incident ray(line drawn) at an angle 10° f) Pins P₁ and P₂ are fixed a long the incident line. g) Looking through the opposite face, pins P₃ and P₄ are fixed such that they appear to be in line with images of P₁ and P₂ h) All pins are removed i) A line through P₃ and P₄ is drawn j) A ray showing the refracted ray is drawn. k) Angle r is measured and recorded l) The experiment is repeated for angles of incidence.,.....,,, and m) Results obtained are tabulated including values of sin i and sin r n) A graph of sin i against sin r is plotted o) The slope n is calculated 	2	P _R 2	2

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	Relevancy		Partially relevant procedures of the experiment and setup stated	1	$P_R 1$	
			No/ irrelevant procedures of the experiment and setup stated	0	$P_R 0$	
	Coherency	P_c	<ul style="list-style-type: none"> Coherent procedures of the experiment. 	2	$P_c 2$	2
			Partially coherent procedures of the experiment.	1	$P_c 1$	
			Incoherent procedures of the experiment	0	$P_c 0$	
7	Presentation of data	D_p	Correct presentation of data	2	$D_p 2$	2
			Partially correct presentation of data <ul style="list-style-type: none"> Design of columnar table of results with at least 3 values of i with an equal or uniform interval 	1	$D_p 1$	
			No or incorrect presentation of data	0	$D_p 0$	
	Recording of data	D_R	Correct recording of data stated <ul style="list-style-type: none"> Values of V recorded to 1dp 	2	$D_R 2$	2
			Partially correct recording of data	1	$D_R 1$	
			No or incorrect recording of data	0	$D_R 0$	
	Set of data	D_S	Maximum set of data stated (3 or more) <ul style="list-style-type: none"> Values of i set with interval 	2	$D_S 2$	2
			Minimum set of data stated (1)	1	$D_S 1$	
			No or incorrect set of data stated	0	$D_S 0$	
8	Accuracy of data	A_c	Correct accuracy of data stated <ul style="list-style-type: none"> Values of r 	2	$A_c 2$	2
			Partially correct accuracy of data stated	1	$A_c 1$	

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			No or incorrect accuracy of data stated out of range	0	Ac 0	
9	Data analysis and interpretation	DA	Appropriate method used to process data(s.f and d.p) <ul style="list-style-type: none"> Values of $\sin i$ calculated to 3dp Values of $\sin r$ calculated to 3dp 	2	DA 2	3
			Partially appropriate method used to process data	1	DA 1	
			No or incorrect method used to process data	0	DA 0	
		DI	Correct interpretation of data <i>Accept methods like;</i> Graph; <ul style="list-style-type: none"> Bearing correct title, scale, axes label Correct Plotting Method of finding the slope, S $n = S$ Value of C, and correct unit 	2	DI 2	2
			Partially correct interpretation of data	1	DI 1	
			No or incorrect interpretation of data	0	DI 0	
10	Sources of errors	ER	<ul style="list-style-type: none"> At least 2 sources of errors stated 	2	ER 2	2
			1 source of error stated	1	ER 1	
			No or incorrect sources of errors stated	0	ER 0	
11	Precautions	Pr	<ul style="list-style-type: none"> At least 2 relevant precautions stated 	2	Pr 2	2
			1 relevant precautions stated	1	Pr 1	
			No or incorrect precautions stated	0	Pr 0	
12	Conclusion	C	Well stated conclusion based on interpretation <ul style="list-style-type: none"> The Critical angle C of the Glass block is⁰ 	2	C 2	2

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			Partial stated conclusion based on interpretation	1	C 1	
			No or incorrect interpretation	0	C 0	
			TOTAL SCORE			32
			+256780413120			