

Question	Answer	Marks	AO Element	Notes	Guidance
1	110 (V) (1) $V_s / 230 = 150 / 314$ OR $V_s = (150 / 314) \times 230$ OR $V_s = 230 / 2.093$ OR $150 / 314 = ? / 230$ (1) $V_s / V_p = N_s / N_p$ (1)	3			
2	circles drawn (1) concentric (by eye) with wire (1) arrow drawn clockwise on / near field (line) (1)	3			
3(a)	any four from: needle oscillates (as magnet moves up and down) (1) coil cuts magnetic field / magnetic field changes (as magnet moves) (1) changing (magnetic) field <u>induces</u> voltage / current (1) induced voltage / current opposes the motion / change causing it (1) force, magnetic field and induced current are mutually perpendicular (1)	4			

Question	Answer	Marks	AO Element	Notes	Guidance
3(b)	larger (maximum) deflection	1			
4(a)	arrow <u>up</u> from side WX of coil AND an arrow <u>down</u> from side YZ of coil	1			
4(b)	any three from: stronger / more powerful magnets smaller gap between coil and magnet(s) larger current in coil more coils / turns	3			
5(a)	cell and switch connected in series with any part of conductor (on the diagram) (1) correct symbols used (on the diagram) (1)	2			
5(b)	circular (1) around conductor/wire (1)	2			
5(c)	no change/nothing	1			
					[Total: 20]