

Name of the Student: _____**Max. Marks : 10 Marks****Time : 10 Minutes**

Mark Schemes

Q1.

Question number	Answer	Additional guidance	Mark
	(inside) a solenoid / long coil (with a current / power supply) (1)	give credit for diagrams accept: horseshoe magnet (between / using) pair of Magnadur / flat magnets (between / using) Helmholtz coils (between / using) two bar magnets, with unlike poles facing each other	(1) A01.2

Q2.

Question number	Answer	Additional guidance	Mark
(i)	1 up(wards) (1) 2 down(wards) (1)	independent marks accept out(wards from the magnet) accept in(wards) / into (magnet) allow 1 mark for 1 down / in(wards) AND 2 up / out(wards)	(2) A01

Question number	Answer	Additional guidance	Mark
(ii)	<p>substitution (1)</p> $0.15 = 0.5(0) \times 2.7 \times L(\text{length})$ <p>rearrangement and evaluation (1)</p> <p>(length =) 0.11 (m)</p>	<p>alternative method</p> <p>re-arrangement (1)</p> <p>(length =) $\frac{F}{B \times I}$</p> <p>Or</p> <p>(length =) $\frac{0.15}{0.5(0) \times 2.7}$</p> <p>(substitution and) evaluation (1)</p> <p>(length =) 0.11 (m)</p> <p>allow any values that round to 0.11 e.g 0.111</p> <p>accept 0.1 or 0.1 (m)</p> <p>allow 1 mark for answer of 9 (with or without working)</p> <p>award full marks for correct answer without working.</p>	(2) AO2

Q3.

Question Number:	Answer	Additional Guidance	Mark
	<p>a description to include:</p> <p>method of producing temporary induced magnetism (1)</p> <p>method of demonstrating the magnetic properties of the temporary magnet (1)</p> <p>method of demonstrating magnetic effect is temporary (1)</p>	<p>place iron near / in contact with magnet / in magnetic field</p> <p>OR</p> <p>use magnet to pick up one paper clip</p> <p>OR</p> <p>use magnet to make iron a temporary magnet</p> <p>paper clip(s) attracted to iron</p> <p>OR</p> <p>use first paper clip to pick up another paper clip</p> <p>remove magnet and paper clips no longer attracted / fall off</p> <p>OR</p> <p>wait some / short time and iron bar no longer picks up / attracts paper clips</p>	<p>(3)</p> <p>AO 1 2</p>

Q4.

Question number	Answer	Mark
(a)	D	(1)

Question number	Answer	Mark
(b)	C	(1)