

Parramatta Campus:

Level 3, 1-3 Fitzwilliam St

Fairfield Main Campus:

39 Barbara St

Module 6

Electromagnetism

Exam

Name: _____

Class: _____

Exam information:

- Allowed 5 minutes reading time
- Working time - 105 minutes
- 10 marks - Multiple Choice questions to be answered on separate answer sheet
- 40 marks – Short Answer questions to be answered on exam paper
- Pen must be used in short answers.
- Pencil may be used for diagrams.
- Allowed material: pen, pencil, rubber, ruler, calculator, given material

Total Marks – 50

This exam has two sections:

Multiple Choice

- Questions 1 – 10
- 10 Marks

MCQ	/10
SA	/40
Total Marks	/50

PHYSICS

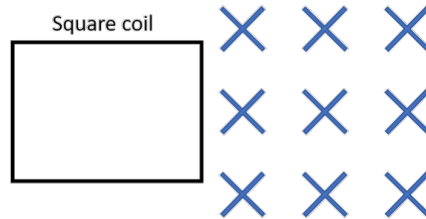
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PHYSICS

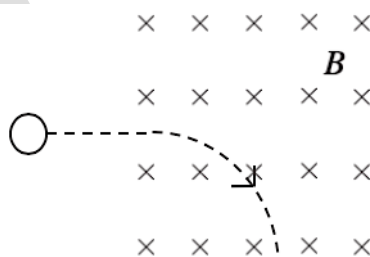
MODULE 6 – ELECTROMAGNETISM

Section A - MCQ (10 Marks)

- 1) What is the direction of current flow shown in the square coil below, given that it is moving to the right, as it enters the magnetic field?



- a) Clockwise
 b) Anticlockwise
 c) Eddy currents are induced
 d) No current
- 2) An ideal DC electric motor is rotating at a constant rate. The motor is then suddenly stopped. Which of the following is a correct statement about the net current flowing through the coil immediately after this change?
- a) The net current decreases because back EMF is induced when the coil suddenly stops and experiences a change in magnetic flux.
 b) The net current decreases because the torque experienced by the coil drops to zero.
 c) The net current increases because there is no longer an induced current via Lenz's Law.
 d) The net current increases because the coil experiences a rapid change in magnetic flux and a current is induced via Lenz's Law.
- 3) The following diagram shows a particle with charge q and mass m entering an external magnetic field at a velocity of v . The particle describes a circular path with radius r . A second particle is fired into the same external magnetic field at the same speed.



Which of the following combinations of mass and charge will result in the second particle travelling a circular path of radius $4r$?

	Charge	Mass
a)	$\frac{1}{2} q$	$\frac{1}{2} m$
b)	$\frac{1}{2} q$	$2m$
c)	$2q$	$\frac{1}{2} m$
d)	$2q$	$2m$

