Grade

10.00 out of 10.00 (100%)

Question 1

Complete

Mark 1.00 out of 1.00

One long wire carries a current of 20 A along the entire *x* axis. A second long wire carries a current of 25 A perpendicular to the *xy* plane and passes through the point (0, 4, 0) m. What is the magnitude of the resulting magnetic field at the point $y = 2.0$ m on the *y* axis?

Select one:

- 3.2uT
- 4.5uT
- 5.5uT
- 6uT

The correct answer is: 3.2uT

Question 2

Complete

Mark 1.00 out of 1.00

A long, straight wire (radius = 3.0 mm) carries a current of 4.0 A distributed uniformly over a cross section perpendicular to the axis of the wire. What is the magnitude of the magnetic field at a distance of 1.0 mm from the axis of the wire?

Select one:

- 0.15 mT
- 0.08 mT
- 0.04 mT
- 0.1 mT

The correct answer is: 0.08 mT

Question 3

Complete

Mark 1.00 out of 1.00

A 3.0-m wire carries a current of 12 A directed along the positive x axis in a region where the magnetic field is uniform and given by B = (30i- 40j) mT. What is the resulting magnetic force on the wire?

Select one:

- +1.44 k
- -1.44 k
- + 1.15 k
- -1.15 k

The correct answer is: -1.44 k

Question 4

Complete

Mark 1.00 out of 1.00

What is the magnetic force on a 2.0-m length of (straight) wire carrying a current of 15 A in a region where a uniform magnetic field has a magnitude of 55 mT and is directed at an angle of 30° away from the wire?

Select one:

- 0.825 N
- 0.35 N
- 0.62 N
- 1.1 N

The correct answer is: 0.825 N

Question 5

Complete

Mark 1.00 out of 1.00

A charged particle (mass = 4.0 *u*g, charge = 5.0 *u*C) moves in a region where the only force on it is magnetic. What is the approximate magnitude of the acceleration of the particle at a point where the speed of the particle is 5.0 km/s, the magnitude of the magnetic field is 10.0 mT, and the angle between the direction of the magnetic field and the velocity of the particle is 40°?

Select one:

- 48 km/s^2
- 44 km/s^2
- 38 km/s^2
- 40 km/s^2

The correct answer is: 40 km/s^2

Question 6

Complete

Mark 1.00 out of 1.00

Two long parallel wires carry unequal currents in the same direction. The ratio of the currents is 4 to 1. The magnitude of the magnetic field at a point in the plane of the wires and 10 cm from each wire is 5.0 *u*T. What is the larger of the two currents?

Select one:

- 0.83A
- 2.66A
- 3.33A
- 1.33A

The correct answers are: 3.33A, 2.66A

Question 7

Complete

Mark 1.00 out of 1.00

An electron moving in the *positive z* direction experiences a magnetic force in the positive *x* direction. What is the direction of the magnetic field?

Select one:

- negative y direction
- negative z direction
- negative x direction
- positive y direction

The correct answer is: positive y direction

Question 8

Complete

Mark 1.00 out of 1.00

A toroid is made of 1000 turns of wire of radius 2.00 cm formed into a donut shape of inner radius 10.0 cm and outer radius 14.0 cm. When a 20.0-A current is present in the toroid, the magnetic field at a distance of 12.0 cm from the center of the toroid is

Select one:

- 0.028 T
- 0.056 T
- 0.04 T
- 0.033 T

The correct answer is: 0.033 T

Question 9

Complete

Mark 1.00 out of 1.00

A straight wire of length 70 cm carries a current of 35 A and makes an angle of 30° with a uniform magnetic field. If the force on the wire is 1.0 N what is the magnitude of **B**?

Select one:

- 52mT
- 78mT
- 47mT
- 81mT

The correct answer is: 81mT

Question 10

Complete

Mark 1.00 out of 1.00

A 0.50-m long solenoid consists of 800 turns of copper wire wound with a 5.0 cm radius. When the current in the solenoid is 12 A, the magnetic field at a point 1.0 cm from the central axis of the solenoid is

Select one:

- 18mT
- 2mT
- 30mT
- 24mT

The correct answer is: 24mT

Finish review

Jump to...

On the lands that we study, we walk, and we live, we acknowledge and respect the traditional custodians and cultural knowledge holders of these lands

cultural knowledge holders of these lands.

University of Wollongong
