Quiz 03 - Electromagnetism

Due Dec 14 at 11:59pm **Points** 120 **Questions** 24
Available Aug 24 at 12pm - Dec 14 at 11:59pm 4 months **Time Limit** None
Allowed Attempts 2

Instructions

Covers lecture and lab topics from classes 10 through 12

Attempt History

	Attempt	Time	Score
KEPT	Attempt 2	9 minutes	120 out of 120
LATEST	Attempt 2	9 minutes	120 out of 120
	Attempt 1	24 minutes	115.83 out of 120

Score for this attempt: **120** out of 120
Submitted Nov 18 at 8:37pm
This attempt took 9 minutes.

Question 1 — 5 / 5 pts

Magnetism is generated by these two means (select all that apply)

Correct!
- [x] Quantum spins
- [ ] Alternating current

Correct!
- [x] Electron current flow
- [ ] Series voltage

Question 2 — 5 / 5 pts

The unit of measure for magnetic flux is

- joule
- Correct! weber
- ampere
- mho

Question 3

5 / 5 pts

Select three rules that govern the behavior of magnetic lines of flux

- Flux lines take the longest, most difficult path
- Correct! Flux lines are continous
- Flux lines in the same direction are subtractive
- Correct! Flux lines flow from North to South
- Correct! Flux lines do not cross
- Flux lines in different direction are additive

Question 4

5 / 5 pts

The unit of measure for flux density is the Tesla. One Tesla is equal to

- 1 admittance per square meter

1 ampere turn per square meter

1 EMF per square meter

Correct! 1 weber per square meter

Question 5

5 / 5 pts

Magnetic reluctance is

The ability to conduct electrons in a magnetic field

The opposition to electron current flow in a magnetic field

The ability to conduct or concentrate magnetic lines of force

Correct! The opposition to the flow or concentration of magnetic lines of force

Question 6

5 / 5 pts

Select three methods for controlling electromagnetic field strength in a coil

Correct! Coil current

Correct! Number of coil turns

Voltage polarity

Correct! Core reluctance

Coil volume

Current direction

Question 7

5 / 5 pts

Fill in the blanks. SPELLING COUNTS!

Faraday's Law states that the induced [electromotive] force or EMF in any [closed] circuit is equal to the [time] rate of change of the [magnetic] flux through the circuit.

Answer 1:

Correct!

electromotive

orrect Answer

Electromotive

Answer 2:

Correct!

closed

orrect Answer

Closed

Answer 3:

Correct!

time

orrect Answer

Time

Answer 4:

Correct!

magnetic

orrect Answer

Magnetic

Question 8

5 / 5 pts

Fill in the blanks. SPELLING COUNTS!

An induced current is always in a direction to oppose the motion or change causing it. Every motor is also a generator. Every generator is also a motor.

Answer 1:

Correct! current

Answer 2:

Correct! oppose

Answer 3:

Correct! change

Answer 4:

Correct! generator

Answer 5:

Correct! motor

Question 9

5 / 5 pts

Alternating current is

Correct!

- (●) Electric charge flow that periodically reverses direction
- ( ) Electric charge flow that periodically creates magnetomotive force
- ( ) Electric charge flow that periodically causes redox reactions
- ( ) Electric charge flow that periodically accumulates on capacitor plates

Question 10

5 / 5 pts

Generator action is

- The conversion of kinetic energy into mechanical energy
- The conversion of electrical energy into mechanical energy
- The conversion of potential energy into kinetic energy

Correct!

- (•) The conversion of mechanical energy into electrical energy

Question 11

5 / 5 pts

A sine wave signal takes 16.667mS to complete one alternation. Find the frequency in Hertz.

Do not include units in your answer. Round your answer to the nearest whole number.

Correct!

60

orrect Answers

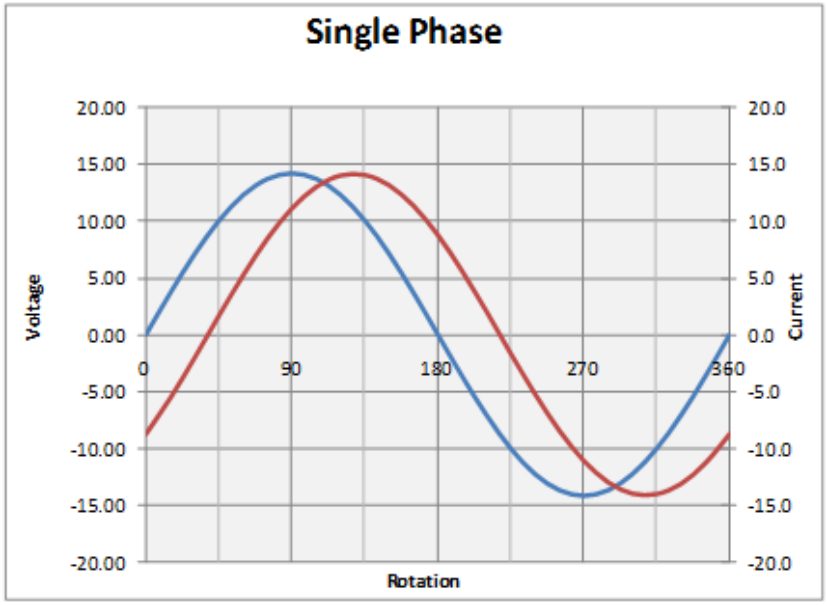
60 (with margin: 0)

Question 12

5 / 5 pts

This sine wave diagram illustrates

Note: voltage in blue, current in red, select all that apply



Correct!

- [x] A phase shift between voltage and current.

Correct!

- [x] Voltage leading current
- [ ] Voltage and current in sync
- [ ] RMS voltage and current
- [ ] Current leading voltage

Question 13

5 / 5 pts

Match the electrical term with it's description

Correct!

Effective voltage — The DC equivalent of an A ▾

Correct!

Effective current — The DC equivalent of an A ▾

Correct!

Peak Voltage — The amplitude of a positiv ▾

Correct!

RMS voltage The root mean square of a

Question 14

5 / 5 pts

A sine wave voltage measures 170 volts peak when observed with an oscilloscope. Find the effective (RMS) voltage.

Correct!

120.19

orrect Answers

120.2 (with margin: 6)

Question 15

5 / 5 pts

An oscilloscope is

- A device for analyzing turbine foreign object damage
- A device for analyzing electric charge on capacitor plates

Correct!

- A device for analyzing voltage oscillations
- A device for analyzing occilloscopic residue

Question 16

5 / 5 pts

An inductor is

- a coil of wire that stores current in it's electrostatic field

a coil of wire that stores energy in it's electrostatic field

Correct! a coil of wire that stores energy in it's magnetic field

a coil of wire that discharges Henrys

Question 17

5 / 5 pts

Inductance is directly related to (select three answers)

The coil current

The coil voltage

Correct! The core permeability

Correct! The cross-sectional area

Correct! The number of coil turns squared

The coil length

Question 18

5 / 5 pts

ELI is an acronym that reminds us that voltage (E) leads current (I) in an inductive (L) circuit.

Correct! True

False

Question 19

5 / 5 pts

This formula isused to calculate

$$L_T = \frac{1}{\frac{1}{L_1} + \frac{1}{L_2} + \frac{1}{L_3} + \ldots \frac{1}{L_n}}$$

- Series resistance
- Correct! Parallel inductance
- Parallel resistance
- Parallel capacitance
- Series capacitance
- Series inductance

Question 20

5 / 5 pts

Select three minimum requirements for mutual inductance

- Correct! Changing current
- constant current
- 1 reluctant core
- 2 capacitors
- Correct! 2 inductors (windings)
- Correct! 1 permeable core

Question 21

5 / 5 pts

Match the transformer term with it's description

Correct!

Turns ratio — The number of secondary

Correct!

Voltage ratio — The secondary to primary

Correct!

Current ratio — The secondary to primary

Question 22

5 / 5 pts

A transformer has 125 secondary windings and 600 primary windings. Find the Turns Ratio (aka transformation ratio)

Correct!

0.208

orrect Answers

0.208 (with margin: 0.0104)

Question 23

5 / 5 pts

A transformer has a transformation ratio of 0.25 and a primary voltage of 120 VAC. Find the secondary voltage.

Correct!

30

orrect Answers 30 (with margin: 1.5)

Question 24

5 / 5 pts

A transformer has 600 primary and 125 secondary windings. The primary draws 10 amperes. Find the secondary current.

Correct!

48

orrect Answers 48 (with margin: 2.4)

Quiz Score: **120** out of 120