QUIZ – ANSWER KEY

QUIZ NO: 149

TOPIC: ELECTRICAL ENGINEERING

DATE: 14/01/2023

1. Reciprocal of reluctance is _____ ?

   [A] Permeance

   [B] Susceptibility

   [C] Resistance

   [D] Conductance

   Answer: A
   Explanation: The reciprocal of reactance is permeance. It is the ability of a material to allow the passage of magnetic lines of flux.

2. Reluctance is _____ to the area of cross section the material ?

   [A] Directly proportional

   [B] Inversely proportional

   [C] Not related

   [D] Equal

   Answer: B

QUIZ – ANSWER KEY

Explanation:

The formula for reluctance is:
$S = l/(\mu_0 \mu_r * A)$.
From the formula, we can see that reluctance is inversely proportional to the area of cross section of the material.

3. When the length of the material increases, what happens to reluctance?

[A] Increases

[B] Decreases

[C] Remains the same

[D] Becomes zero

Answer: A
Explanation: Reluctance is directly proportional to the length of the material hence as length increases, reluctance also increases.

4. When the area of cross section of the material increases, what happens to reluctance?

[A] Increases

[B] Decreases

[C] Remains the same

[D] Becomes zero

Answer: B

Explanation: Reluctance is inversely proportional to the area of cross section of the material hence as area increases, reluctance decreases.

QUIZ – ANSWER KEY

5. The electrical equivalent of reluctance is?

[A] Resistance

[B] Inductance

[C] Capacitance

[D] Conductance

Answer: A

Explanation: Resistance is the opposition to the flow of charge, similarly reluctance is the opposition to the flow of magnetic flux.

6. As the magnetic field strength increases, reluctance?

[A] Increases

[B] Decreases

[C] Remains the same

[D] Becomes zero

Answer: A

Explanation: Reluctance is directly proportional to the strength of the magnetic field, hence as the strength of magnetic field increases, the reluctance increases.

7. As the magnetic flux density increases, the reluctance _____?

[A] Increases

[B] Decreases

[C] Remains the same

[D] Becomes zero

Answer: B

Explanation: Reluctance is inversely proportional to the magnetic flux density, hence as magnetic flux density increases, reluctance decreases.

QUIZ – ANSWER KEY

8. Calculate the reluctance when the magnetomotive force is 10A turns and the flux is 5Wb ?

[A] 0.5A/Wb
[B] 5A/Wb
[C] 10A/Wb
[D] 2A/Wb

Answer: D

Explanation:

We know that:
$F=\phi*S$
Substituting the given values from the question:
S=2A/Wb.

9. A substance whose relative permeability is less than the permeability of free space is?

[A] Diamagnetic
[B] Paramagnetic
[C] Ferromagnetic
[D] Not a magnetic substance

Answer: A

Explanation: A diamagnetic material creates a magnetic field opposing that of the external magnetic field and it repels the external magnetic field. Hence its relative permeability is less than that of the free space.

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10. Diamagnetic substances have relative permeability_____?

[A] Greater than 1
[B] Less than 1
[C] Equal to 1
[D] Zero

Answer: B

Explanation: A diamagnetic material creates a magnetic field opposing that of the external magnetic field and it repels the external magnetic field. Hence it has relative permeability less than 1.