

AC AND EMI

This set of Basic Electrical Engineering Multiple Choice Questions & Answers (MCQs) focuses on "Electromagnetic Induction".

1. An E.M.F. can be induced by _____
 - a) Change in the magnetic field only
 - b) Change in the area of cross section only
 - c) Change in angle between magnetic field and area only
 - d) Change in the magnetic field, area or angle between them
2. What happens to the current in a coil while accelerating a magnet inside it?
 - a) Increases
 - b) Decreases
 - c) Remains constant
 - d) Reverses
3. What is the consequence of motor effect?
 - a) Current
 - b) Voltage
 - c) Electromagnetic induction
 - d) EMF
4. The total number of magnetic field lines passing through an area is termed as?
 - a) Voltage
 - b) EMF
 - c) Magnetic flux
 - d) Magnetic flux density
5. The formula for induced emf if magnetic field, length and velocity of conductor all are mutually perpendicular is _____
 - a) $\text{emf} = B^2l$
 - b) $\text{emf} = Bil$
 - c) $\text{emf} = Blv$
 - d) $\text{emf} = B^2v$
6. If a conductor 0.2m long moves with a velocity of 0.3m/s in a magnetic field of 5T, calculate the emf induced if magnetic field, velocity and length of conductor are mutually perpendicular to each other.
 - a) 0.3V
 - b) 0.03V
 - c) 30V
 - d) 3V
7. Find the length of a conductor which is moving with a velocity 0.4m/s in a magnetic field of 8T, inducing an emf of 20V if magnetic field, velocity and length of

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conductor are mutually perpendicular to each other.

- a) 50m
- b) 5m
- c) 6.25m
- d) 0.5m

8. Find the strength of the magnetic field in a conductor 0.5m long moving with a velocity of 10m/s, inducing an emf of 20V if magnetic field, velocity and length of conductor are mutually perpendicular to each other.

- a) 1T
- b) 2T
- c) 3T
- d) 4T

9. What does emf stand for?

- a) Electronic magnetic force
- b) Electromotive force
- c) Electromagnetic force
- d) Electromated force

10. What is emf?

- a) Force
- b) Voltage
- c) Current
- d) Flux

11. The resistance of pure metals _____

- a) Increases with an increase in temperature
- b) Decreases with an increase in temperature
- c) Remains the same with an increase in temperature
- d) Becomes zero with an increase in temperature

12. The resistance of insulators _____

- a) Increases with an increase in temperature
- b) Decreases with an increase in temperature
- c) Remains the same with an increase in temperature
- d) Becomes zero with an increase in temperature

13. Which of the following statements are true about metals?

- a) Metals have a positive temperature coefficient
- b) Metals have a negative temperature coefficient
- c) Metals have zero temperature coefficient
- d) Metals have infinite temperature coefficient

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14. Which of the following statements are true about insulators?

- a) Insulators have a positive temperature coefficient
- b) Insulators have a negative temperature coefficient
- c) Insulators have zero temperature coefficient
- d) Insulators have infinite temperature coefficient

15. What is the unit of temperature coefficient?

- a) ohm/centigrade
- b) ohm-centigrade
- c) centigrade⁻¹
- d) centigrade

16. A copper coil has a resistance of 200 ohms when its mean temperature is 0 degree centigrade. Calculate the resistance of the coil when its mean temperature is 80 degree centigrade. Temperature coefficient of copper is 0.004041 centigrade⁻¹

- a) 264.65 ohm
- b) 264.65 kilo-ohm
- c) 286.65 ohm
- d) 286.65 kilo-ohm

17. The temperature of a coil cannot be measured by which of the following methods?

- a) Thermometer
- b) Increase in resistance of the coil
- c) Thermo-junctions embedded in the coil
- d) Calorimeter

18. The rise or fall in resistance with the rise in temperature depends on _____

- a) The property of the conductor material
- b) The current in the metal
- c) Property of material as well current in that material
- d) Does not depend on any factor

19. If the temperature is increased in semi-conductors such that the resistance incessantly falls, it is termed as _____

- a) Avalanche breakdown
- b) Zener breakdown
- c) Thermal runaway
- d) Avalanche runaway

20. Materials having resistance almost equal to zero is _____

- a) Semi-conductor
- b) Conductor

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- c) Superconductors
- d) Insulators

ANSWERS-1.(D) 2.(A) 2.(C) 3.(C) 4.(C) 5.(C) 6.(A) 7.(C) 8.(D) 9.(B) 10.(B)

11.(A) 12.(B) 13.(A) 14.(B) 15.(C) 16.(A) 17.(D) 18.(A) 19.(C) 20.(C)