

# ELECTRIC CURRENT AND MAGNETISM BASED GENERAL SCIENCE MCQ PRACTICE QUESTIONS AND ANSWERS PDF WITH EXPLANATION

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Created By [Careericons](#) Team

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**Q1.** An AC generator of 220 V having internal resistance  $r = 10\ \Omega$  and external resistance  $R = 100\ \Omega$ . What is the power developed in the external circuit?

- a) 400 W
  - b) 441 W
  - c) 484 W
  - d) 369 W
- 

**Q2.** Consider the following statements :

- Magnetic field produced by current in a straight wire has no poles.
- The magnetic lines of force produced by a straight current carrying conductor are straight in nature.
- To produce a strong magnetic field at its centre, we prefer a current carrying wire loop of larger radius.

Which of these statements is/are correct?

- a) 1 only
  - b) 1 and 3
  - c) 2 only
  - d) 1, 2 and 3
- 

**Q3.** Out of the following, diamagnetic substance is

- a) lead
  - b) iron
  - c) copper
  - d) silver
-

**Q4.** The length of a wire is doubled and the radius is doubled. By what factor does the resistance change?

- a) Twice as large
- b) Unchanged
- c) 4 times as large
- d) Half as large

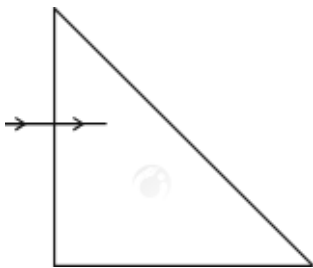
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**Q5.** A ray of light is incident normally on one of the faces of right angled isosceles prism as shown above. It undergoes total internal reflection from hypotenuse. Which one of the following is the minimum refractive index of the material of the prism?



- a) 1.414
- b) 1.0
- c) 1.33
- d) 1.6

**Q6.** Alternating current is converted to direct current by

- a) dynamo
- b) transformer
- c) rectifier
- d) motor

**Q7.** Which element is the best conductor of electricity?

- a) Aluminium
  - b) Silver
  - c) Copper
  - d) Iron
- 

**Q8.** Barrier potential of a p-n junction diode does not depend on

- a) diode design
  - b) temperature
  - c) doping density
  - d) forward bias
- 

**Q9.** The main power supply in India is at 220 V, whereas that in the US is at 110 V. Which one among the following statements in this regard is correct?

- a) 110 V leads to lower power loss
  - b) 110 V is safer but more expensive to maintain
  - c) 110 V is safer and cheaper to maintain
  - d) 110 V works better at higher latitudes
- 

**Q10.** When a fuse is rated 8A, it means

- a) it has a resistance of 8 ohm
  - b) it will work only if current is 8A
  - c) it will not work if current is less than 8A
  - d) it will burn if current exceeds 8A
- 

**Q11.** Which of the following sentences is/are correct about a conductor of electricity?

- Metals in general are good conductors of electricity.
- Distilled water conducts electricity.
- Tap water conducts electricity.
- Rubber is a bad conductor of electricity

- a) 1, 3 and 4
- b) 1 and 2
- c) 2 and 3
- d) 1, 2 and 3

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**Q12.** Which one of the following is a non-magnetic substance?

- a) Nickel
- b) Iron
- c) Cobalt
- d) Brass

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**Q13.** The magnetic compass is not useful for navigation near the magnetic poles. Since

- a)  $H = 0$
- b)  $R = 0$
- c)  $V = 0$
- d)  $\theta = 0^\circ$

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**Q14.** What is the difference between a CFL and an LED Lamp?

- To produce light, a CFL uses mercury vapour and phosphor while an LED lamp uses semiconductor material.
- The average life span of a CFL is much longer than of an LED lamp.
- A CFL is less energy efficient as compared to an LED lamp.

Which of the statements given above is/are correct?

- a) 1 and 3
- b) Only 1
- c) 2 and 3
- d) 1, 2 and 3

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**Q15.** A current  $I$  flows through a potential difference  $V$  in an electrical circuit containing a resistance  $R$ . The product of  $V$  and  $I$ , i.e.,  $VI$  may be understood as

- a) thermal power radiated by the circuit
- b) resistance  $R$
- c) heat generated by the circuit
- d) rate of change of resistance

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**Answers to the above questions :**

**Q1. Answer: (a)**

$$V = 200V; r = 10\Omega$$

$$R' = 10 + 100\Omega = 110\Omega$$

$$I = \frac{V}{R'} = \frac{220}{110} = 2A$$

$$P = I^2 R = 4 \times 100 = 400 W$$

**Q2. Answer: (a)**

Magnetic field lines form in concentric circles around a cylindrical current-carrying conductor, such as a length of wire.

The strength of the magnetic field at the centre of a circular coil carrying current is inversely proportional to the radius of the circular coil.

i.e. the field strength reduces as the radius of the coil increases.

**Q3. Answer: (c)**

Copper has negative susceptibility

(i.e.  $\chi = -0.96$ ). Hence, it is diamagnetic.

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**Q4. Answer: (d)**

**Q5. Answer: (a)**

**Q6. Answer: (c)**

**Q7. Answer: (b)**

**Q8. Answer: (a)**

[Hint : Barrier potential depends on, doping density, temperature, forward/reverse bias but does not depend on diode design.]

**Q9. Answer: (b)**

**Q10. Answer: (c)**

**Q11. Answer: (a)**

Distilled water is insulator of electricity.

**Q12. Answer: (d)**

**Q13. Answer: (a)**

Near the magnetic poles,  $H = 0$ , therefore, magnetic compass will not work.

**Q14. Answer: (a)**

**Q15. Answer: (a)**

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