



CHEMISTRY

BOOKS - VGS BRILLIANT CHEMISTRY (TELUGU ENGLISH)

ELECTROMAGNETISM

Exercise

1. The magnitude of magnitic field at a point due to a current carrying small element does

not depend open

A. current in the element

B. length of the element

C. diameter of the element

D. distance of the point from the element

Answer:



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2. If a current i ampere flows in a long straight thin walled tube, then magnetic induction at any point inside the tube is

A. Zero

B. Infinite

C. $\frac{2i}{r}$ Tesla

D. $\frac{\mu_0}{4\pi} - \frac{2i}{r}$ Tesla

Answer:



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3. A coil having N turns is wound tightly in the form of a spiral with inner and outer radii a and b respectively when a current I passes through the coil, the magnetic field at the centre is

A. $\frac{\mu_0 NI}{b}$

B. $\frac{2\mu_0 NI}{a}$

C. $\frac{\mu_0 NI}{2(b-a)} \ln \left(\frac{b}{a} \right)$

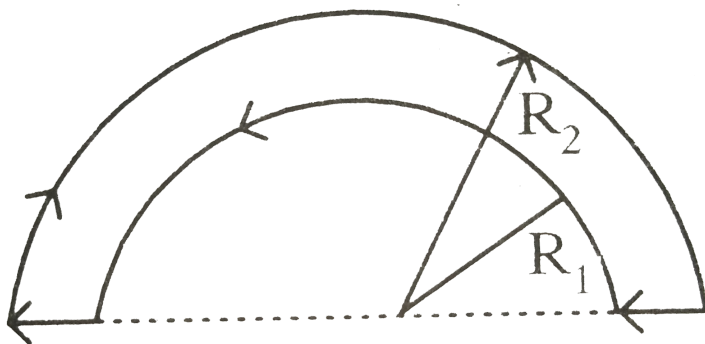
D. $\frac{\mu_0 NI}{2(b-a)} \ln \left(\frac{b}{a} \right)$

Answer:



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4. A wire loop formed by joining two semicircular sections of radii R_1 and R_2 and centre C carries a current I as shown in the figure . The resultant magnetic field at C has a magnitude of



A. $\frac{\mu_0 I}{4} \left(\frac{1}{R_1} - \frac{1}{R_2} \right)$

B. $\frac{\mu_0 I}{2} \left(\frac{1}{R_1} - \frac{1}{R_2} \right)$

C. $\frac{\mu_0 I}{4} \left(\frac{1}{R_1} + \frac{1}{R_2} \right)$

D. $\frac{\mu_0 I}{2} \left(\frac{1}{R_1} + \frac{1}{R_2} \right)$

Answer:



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5. A closely wound solenoid 80 cm long has 5 layers of windings of 400 turns each . If it

carries a current of 8 A then magnetic field inside the solenoid near its centre is

A. $5 \times 10^{-3} T$

B. $25 \times 10^{-3} T$

C. $50 \times 10^{-3} T$

D. $75 \times 10^{-3} T$

Answer:



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6. A proton moving with a velocity $2.5 \times 10^7 \text{ m} - \text{s}^{-1}$, enters a magnetic field of intensity 2.5 T at an angle 30° with the magnetic field. The force on the proton is

A. $3 \times 10^{-12} \text{ N}$

B. $5 \times 10^{-12} \text{ N}$

C. $6 \times 10^{-12} \text{ N}$

D. $9 \times 10^{-12} \text{ N}$

Answer:



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7. A particle of mass m and charge q moves with a constant velocity V along the positive x -direction . It enters a regio containing a uniform magnetic field B directed along the negative z -direction, extending from $x = a$ to $x = b$. The minimum value of V required, so that the particle can just enter the region of $x > b$ is

A. $\frac{qbB}{m}$

B. $\frac{qaB}{m}$

C. $\frac{q(b - a)B}{m}$

D. $\frac{q(b + a)B}{2m}$

Answer:



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8. Which of the following statements are in correct ?

a) Magnetic lines of force always start from the north pole of the magnet and end at the south pole .

b) Magnetic lines of force are very close to each other near the poles and widely.

c) Magnetic lines of force intersect each other.

d) Closes the magnetic lines of force, lesser os the field .

A. a and c

B. b and c

C. c and d

D. d and b

Answer:



9. Which of the following statements are NOT the functions of the commutator in a D . C Motor ?

- a) To reverse the direction of the flow of current in the coil at every half rotation.
- b) To reverse the voltage in the coil at every half rotation.
- c) to enable the coil to be in electrical contact with the carbon brushes.

A. Only a and b

B. Only b and c

C. Only c and a

D. a,b and c

Answer:



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10. Which of the following factors regarding solenoid is in correct ?

a) The strenght of current $B \propto \frac{1}{I}$

b) The number of turns of wire forming

solenoid $B \propto n$

c) Nature of material inside the solenoid

$$B \propto \frac{1}{\mu}$$

A. a and b

B. a and c

C. b and c

D. All of these

Answer:



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11. The current in a generator armature is AC because

- A. the magnetic field reverses at intervals.
- B. the current in the field coils is AC.
- C. the rotation of the armature causes in the field through it to reverse
- D. the commutator feeds current into it in opposite directions every half cycle.

Answer:



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12. The magnitude of magnetic field at a point due to a current carrying small element does not depend on

A. current in the element

B. length of the element

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Answer:



13. If a current i ampere flows in a long straight thin walled tube, then magnetic induction at any point inside the tube is

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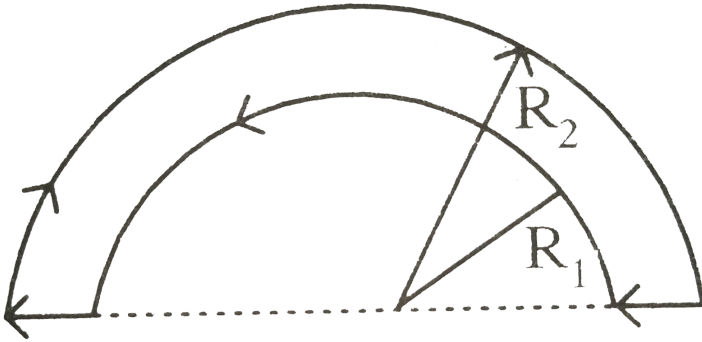
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