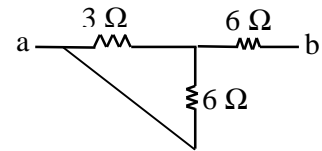


9) Three resistors are connected as shown. The equivalent resistance is

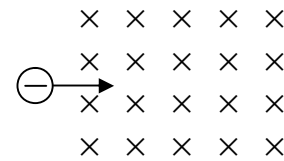


- a) 3.6 Ω b) 6.0 Ω c) 9.0 Ω d) 8.0 Ω

10) A magnetic field exerts a force on a charged particle if the particle

- a) moves parallel to the magnetic field b) moves perpendicular to the magnetic field
 c) moves in any direction d) is at rest

11) After entering the magnetic field, the electron will deflect

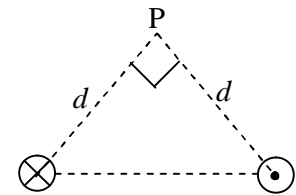


- a) up b) down
 c) out of page d) into the page

12) The unit of the magnetic dipole moment is

- a) A.m b) A/m c) A.m² d) A/m²

13) the figure shows two long parallel wires of equal currents directed as shown. The direction of the magnetic field at point p is



- a) up b) down c) left d) right

14) In Ampere's law, $\oint \mathbf{B} \cdot d\mathbf{s} = \mu_0 I$, the integration must be over

- a) any surface b) any closed surface
 c) any path d) any closed path

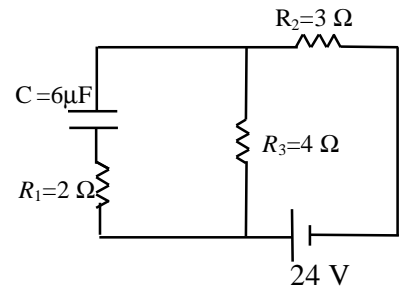
15) The magnetic flux through any closed surface is zero if

- a) the surface has a high degree of symmetry b) the surface encloses no magnetic field
 c) always d) never

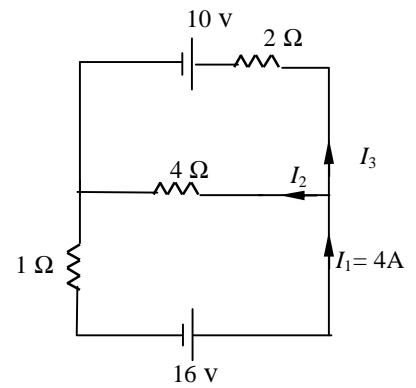
PART II: Solve the following problems

(4×10=40 pts)

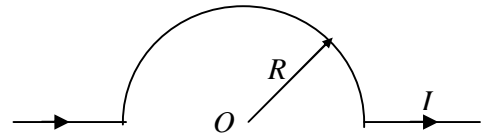
Q1) Consider the *RC* circuit shown. Find the maximum charge in the capacitor.



Q2) Consider the circuit shown in the figure. Calculate the currents I_2 , and I_3 .



Q6) consider the current-carrying wire shown, with the curved portion is a semicircle of radius R . Find the magnetic field at point O , the center of the circle.



Q7) A long wire carries a uniform current I as in the figure. Calculate the magnetic field at a distance r from the wire.

