

- 1 A bar magnet is divided in two pieces. Which of the following statements is true?**



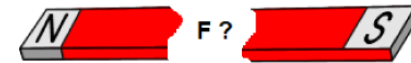
- ☐ **A The magnet bar is demagnetized.**
- ☐ **B The magnetic field of each separated piece becomes stronger.**
- ☐ **C The magnetic poles are separated.**
- ☐ **D The two magnets are created.**
- ☐ **E The electric field is created.**

**2 A bar magnet is divided in two pieces. Which of the following statements is true about the force between the broken pieces if they face each other with a small separation?**

☐ **A There is an electric repulsive force between the broken pieces.**



☐ **B There is an electric attractive force between the broken pieces.**

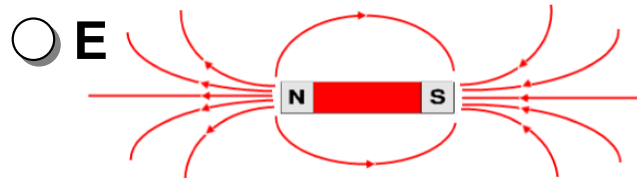
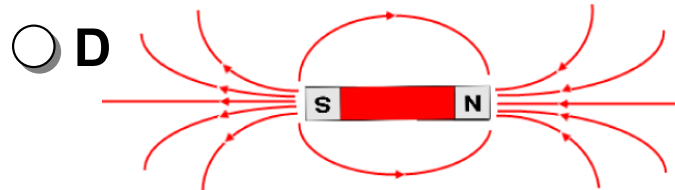
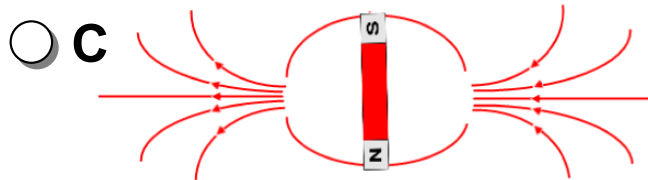
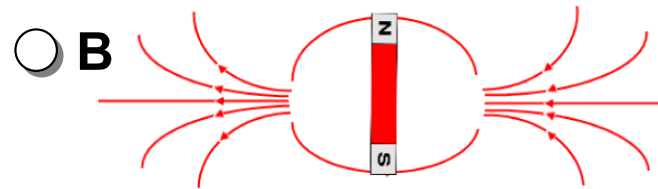
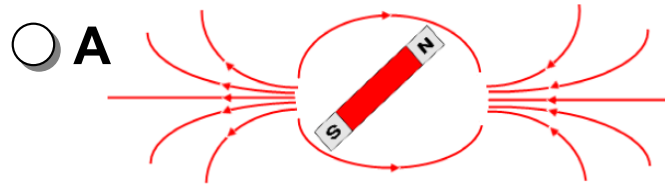


☐ **C There is a magnetic repulsive force between the broken pieces.**

☐ **D There is a magnetic attractive force between the broken pieces.**

☐ **E There is no force between the broken pieces since they are demagnetized.**

**3 Which of the following magnetic fields is correct for a single bar magnet?**

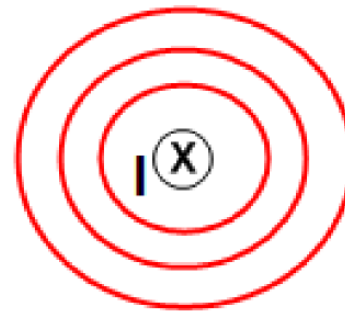


**4 A DC current produces a/an:**

- ☐ **A Magnetic field.**
- ☐ **B Electric field.**
- ☐ **C Gravitational field.**
- ☐ **D Electromagnetic field.**
- ☐ **E None from the above.**

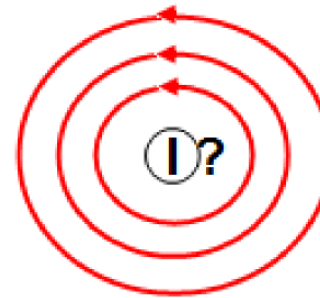
**5 An electric current flows into the page. What is the direction of the magnetic field?**

- ☐ **A To the bottom of the page.**
- ☐ **B To the top of the page.**
- ☐ **C Clockwise.**
- ☐ **D Counter-clockwise.**
- ☐ **E To the right.**



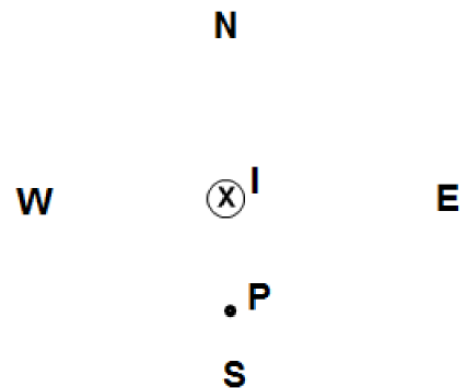
**6 A current-carrying wire is placed perpendicular to the page. Determine the direction of the electric current from the direction of the magnetic field.**

- ☐ **A Into the page.**
- ☐ **B Out of the page.**
- ☐ **C Clockwise.**
- ☐ **D Counter-clockwise.**
- ☐ **E To the left.**



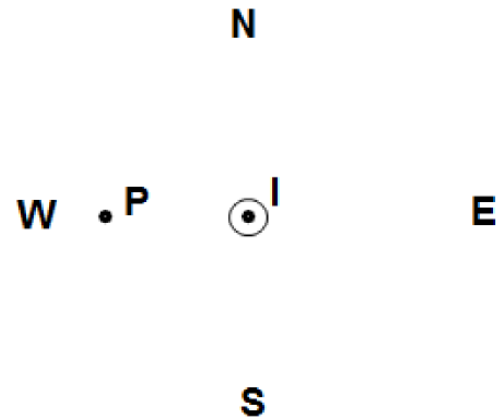
**7 A vertical wire carries an electric current into the page. What is the direction of the magnetic field at point P located to the south from the wire?**

- ☐ **A West.**
- ☐ **B North.**
- ☐ **C East.**
- ☐ **D South.**
- ☐ **E Down.**



**8 A vertical wire carries an electric current out of the page. What is the direction of the magnetic field at point P located to the west from the wire?**

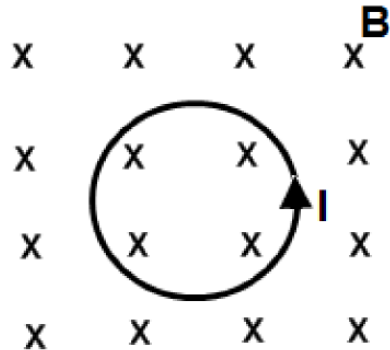
- ☐ A West.
- ☐ B North.
- ☐ C East.
- ☐ D South.
- ☐ E Down.



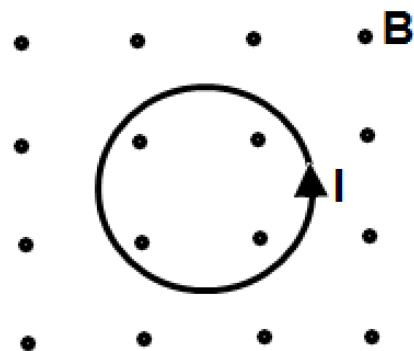


9 Which of the following diagrams represents the magnetic field due to a circular current?

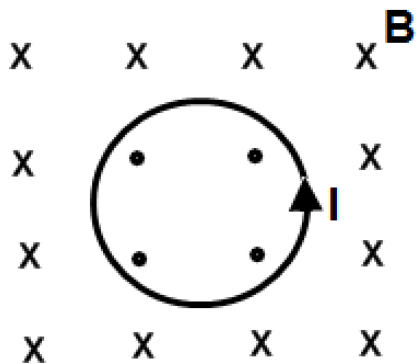
☐ A



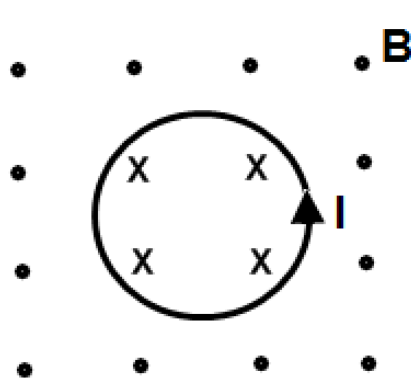
☐ B



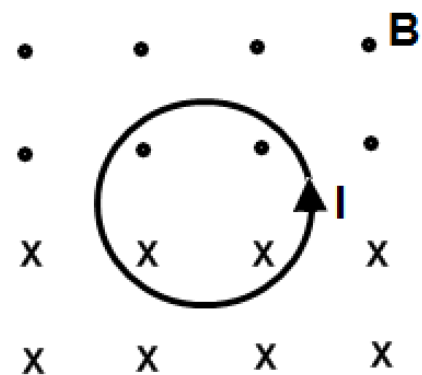
☐ C



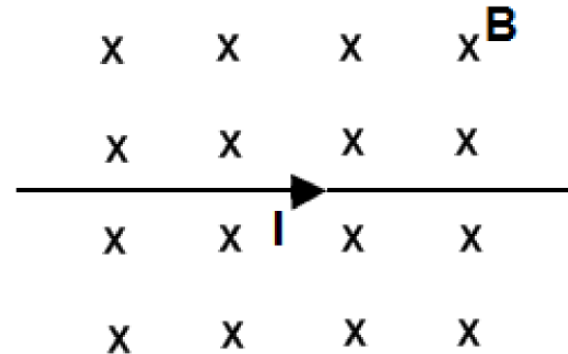
☐ D



☐ E



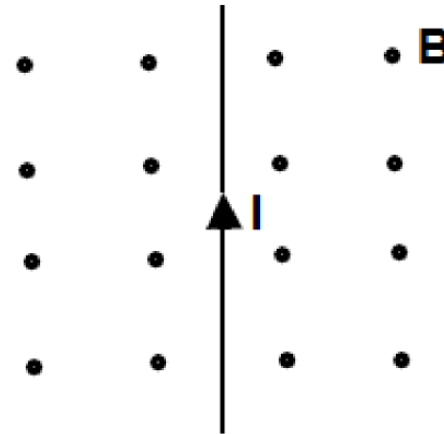
**10 A straight long wire carries an electric current to the right. The current is placed in a uniform magnetic field directed into the page. What is the direction of the magnetic force on the current?**



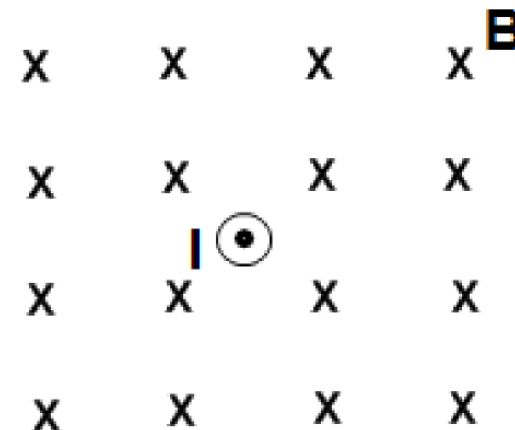
- ☐ **A Left.**
- ☐ **B Right.**
- ☐ **C To the bottom of the page.**
- ☐ **D To the top of the page.**
- ☐ **E Out of the page.**

**11 A straight long wire carries an electric current to the top of the page. The current is placed in a uniform magnetic field directed out the page. What is the direction of the magnetic force on the current?**

- ☐ **A Left.**
- ☐ **B Right.**
- ☐ **C To the bottom of the page.**
- ☐ **D To the top of the page.**
- ☐ **E Out of the page.**



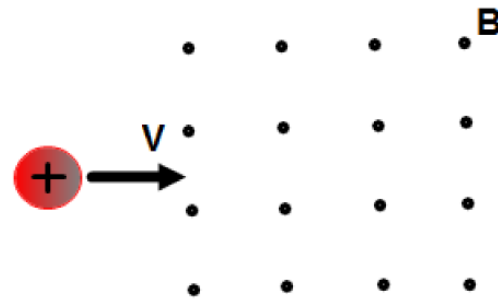
**12 A straight long wire carries an electric current out the page. The current is placed in a uniform magnetic field directed into the page. What is the direction of the magnetic force on the current?**



- ☐ A Left.
- ☐ B Right.
- ☐ C To the bottom of the page.
- ☐ D To the top of the page.
- ☐ E There is no magnetic force on the current.

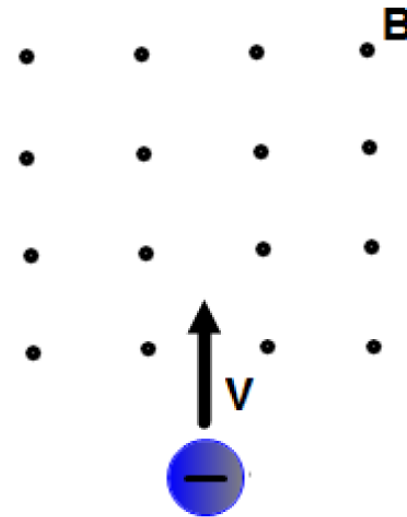
**13 A positive charge moving with a constant velocity  $v$  enters a region of a uniform magnetic field pointing out the page. What is the direction of the magnetic force on the charge?**

- ☐ **A Left.**
- ☐ **B Right.**
- ☐ **C To the bottom of the page.**
- ☐ **D To the top of the page.**
- ☐ **E There is no magnetic force on the current.**



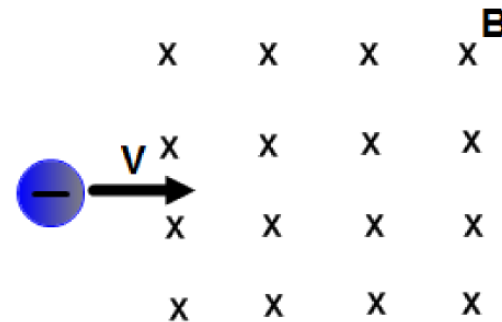
**14 A negative charge moving with a constant velocity  $v$  enters a region of a uniform magnetic field pointing out the page. What is the direction of the magnetic force on the charge?**

- ☐ **A Left.**
- ☐ **B Right.**
- ☐ **C To the bottom of the page.**
- ☐ **D To the top of the page.**
- ☐ **E There is no magnetic force on the current.**



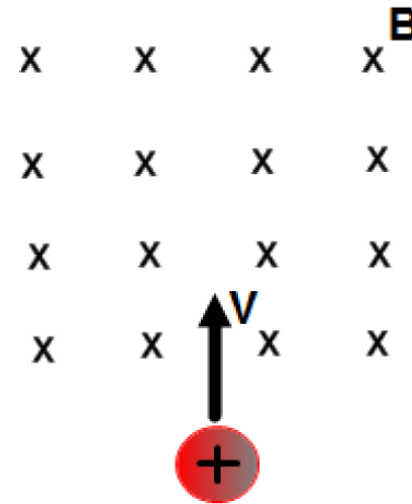
**15 A negative charge moving with a constant velocity  $v$  enters a region of a uniform magnetic field pointing into the page. What is the direction of the magnetic force on the charge?**

- ☐ A Left.
- ☐ B Right.
- ☐ C To the bottom of the page.
- ☐ D To the top of the page.
- ☐ E There is no magnetic force on the current.



**16 A positive charge moving with a constant velocity  $v$  enters a region of a uniform magnetic field pointing into the page. What is the direction of the magnetic force on the charge?**

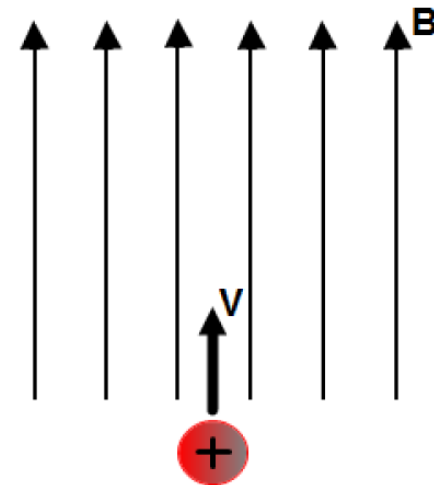
- ☐ **A Left.**
- ☐ **B Right.**
- ☐ **C To the bottom of the page.**
- ☐ **D To the top of the page.**
- ☐ **E There is no magnetic force on the current.**





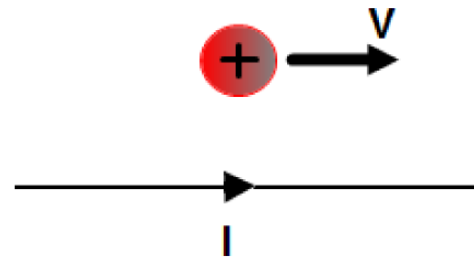
**17 A positive charge moving with a constant velocity  $v$  enters a region of a uniform magnetic field pointing to the top of the page. What is the direction of the magnetic force on the charge?**

- ☐ **A Left.**
- ☐ **B Right.**
- ☐ **C To the bottom of the page.**
- ☐ **D To the top of the page.**
- ☐ **E There is no magnetic force on the current.**



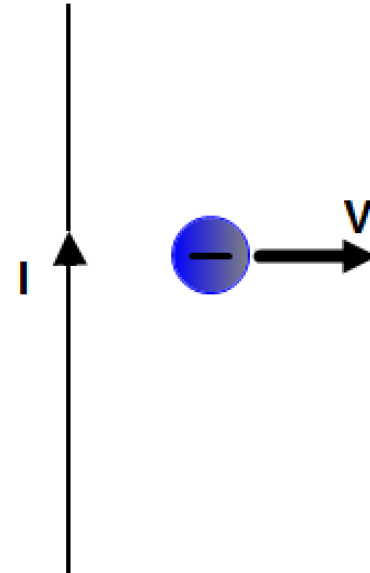
**18 A positive charge moves in parallel to a current carrying wire. What is the direction of the magnetic force on the charge?**

- ☐ A Left.
- ☐ B Right.
- ☐ C To the bottom of the page.
- ☐ D To the top of the page.
- ☐ E There is no magnetic force on the current.



**19 A negative charge moves away from a current carrying wire. What is the direction of the magnetic force on the charge?**

- ☐ **A Left.**
- ☐ **B Right.**
- ☐ **C To the bottom of the page.**
- ☐ **D To the top of the page.**
- ☐ **E There is no magnetic force on the current.**



**20 A vertical wire carries an electric current into the page. An electron approaches the current from east. What is the direction of the magnetic force on the electron?**

- ☐ **A East.**
- ☐ **B West.**
- ☐ **C North.**
- ☐ **D South.**
- ☐ **E Into the page.**

