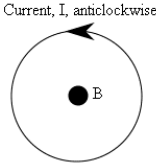
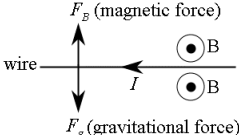


## Chapter 7 Magnetic fields. Revision Questions page 205-207 – Multiple Choice Answers

| Q | Ans | Explanation   |
|---|-----|---|
| 1 | B   | Using Ampere's right hand rule the thumb points into the page as indicated by the cross in the wire. The fingers of the right-hand curl around the wire in a clockwise direction and at a point east (E) of the wire, the fingers are pointing down the page (south, S).  |
| 2 | D   |  <p>Using right hand rule for solenoids (see p193), fingers curl anticlockwise and thumb points forwards (out of page). This is the direction of the field.</p>  |
| 3 | C   |  <p>Gravitational force <math>F_g</math> is down, so magnetic force <math>F_B</math> has to be up. Using Fleming's left hand rule (p 195): thumb (force, <math>F</math>) up, middle finger (current, <math>I</math>) to the left and result is index finger (magnetic field, <math>B</math>) points out of page (circle with dot). Alternatively, using the right hand palm (slap) rule, make palm (force) face up, and thumb in direction of current (to the left). Fingers (field, <math>B</math>) will point out of the page.</p> |
| 4 | A   | Weight (gravitational force, $F_g$ ) of the wire = $mg$ , so force up ( $F_B$ ) also equals $mg$ . As $F_B = BIL = mg$ , we can say that $B = mg/IL$  |
| 5 | B   | Using Fleming's left-hand rule (p 195): index finger (field, $B$ ) to right. Middle finger (current, $I$ ) up the page. Result is thumb (force, $F$ ) is into page. Using the right-hand palm rule, point fingers (field) to the right and thumb (current) upwards (obviously not at right angles to the field – but generally upwards). The palm (force) faces into the page.  |

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