

Name of the Student: _____

Max. Marks : 20 Marks

Time : 20 Minutes

Q1.

Figure 11 shows the shape of the magnetic field near a bar magnet.

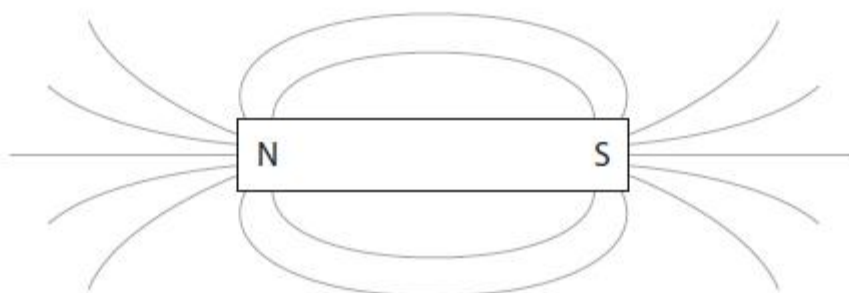


Figure 11

(i) Draw arrows on the field lines in Figure 11 to show the direction of the magnetic field. (1)

(ii) Place a letter X on Figure 11 at a place where the magnetic field is strongest. (1)

(iii) Describe **two** differences between the magnetic field shown in Figure 11 and a uniform magnetic field. (2)

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(Total for question = 4 marks)

Q2.

Figure 4 shows the shape of the magnetic field near a bar magnet.

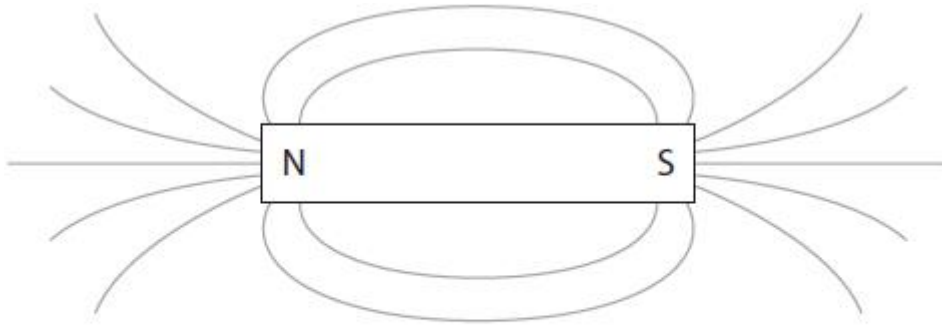


Figure 4

- (i) Draw arrows on the field lines in Figure 4 to show the direction of the magnetic field. (1)
- (ii) Place a letter X on Figure 4 at a place where the magnetic field is strongest. (1)
- (iii) Describe **two** differences between the magnetic field shown in Figure 4 and a uniform magnetic field. (2)

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(Total for question = 4 marks)

Q3.

A student sets up the apparatus shown in Figure 9.

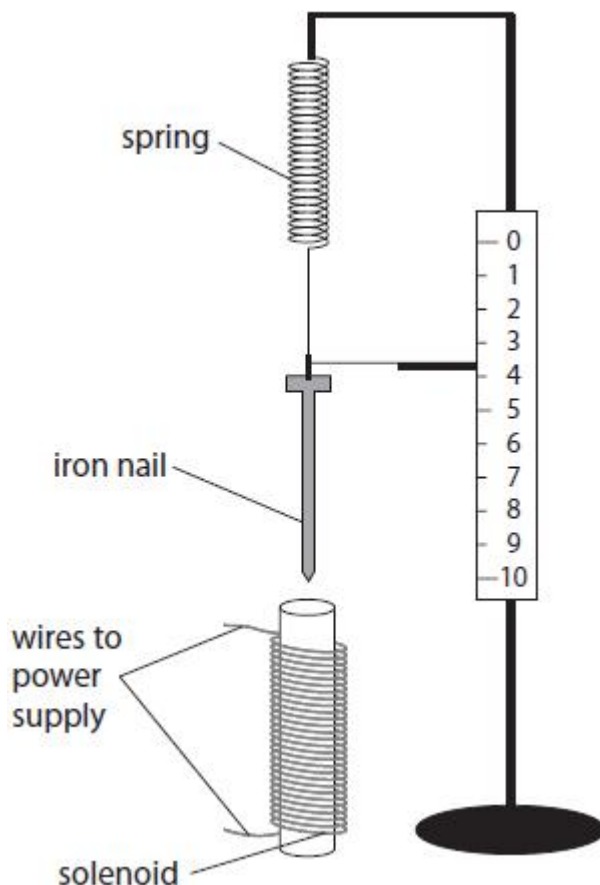


Figure 9

(i) When the current in the solenoid is switched on, the solenoid attracts the iron nail.

Describe how the student could use this apparatus to investigate how the size of the current in the solenoid affects the force of attraction between the solenoid and the iron nail.

(4)

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(ii) The spring constant of a different spring is 24 N/m.

The spring is extended from its unstretched length by 12 cm.

Calculate the energy transferred in extending the spring by 12 cm.

Use an equation selected from the list of equations at the end of this paper.

(2)

energy transferred = J

(Total for question = 6 marks)

Q4.

A student sets up the apparatus shown in Figure 9.

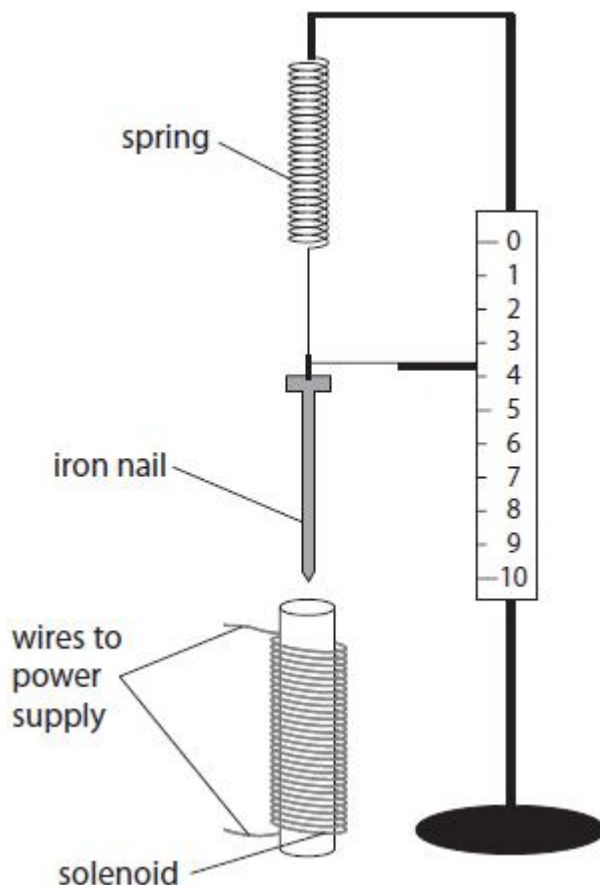


Figure 9

(i) When the current in the solenoid is switched on, the solenoid attracts the iron nail.

Describe how the student could use this apparatus to investigate how the size of the current in the solenoid affects the force of attraction between the solenoid and the iron nail.

(4)

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(ii) The spring constant of a different spring is 24 N/m.

The spring is extended from its unstretched length by 12 cm.
Calculate the energy transferred in extending the spring by 12 cm.
Use an equation selected from the list of equations at the end of this paper.

(2)

energy transferred = J

(Total for question = 6 marks)