

31-5 Induction and Energy Transfers

31-05

Question 948

In the arrangement shown in Figure (7), a conducting bar moves to the right. Assume $R=10$ -Ohm, $L=0.5$ m, and that a uniform 3.5 T magnetic field is directed into the page. Neglect the mass of the bar, find the power dissipated in the resistor such that the bar moves to the right with a constant speed of 4.0 m/s?

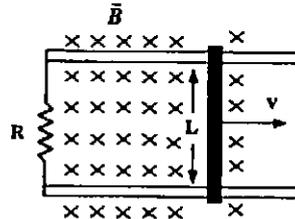


Figure # 7

- (a) 1.3 W.
- (b) 4.9 W.
- (c) 8.6 W.
- (d) 2.4 W.
- (e) 7.6 W.

31-05

0.51-51%

Question 949

A conducting rod of length 1.2 m is moving with a speed of 10 m/s as shown in Figure 9. If the magnetic field is 0.55 T into the page. Calculate the potential difference between the ends of the rod.

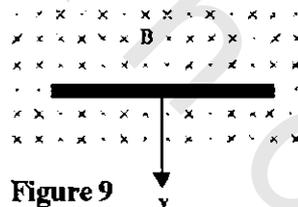


Figure 9

- (a) 5.5 V
- (b) ZERO
- (c) 2.2 V
- (d) 8.8 V
- (e) 6.6 V

31-05

Question 950

Figure 7 shows a conducting bar moving with a constant speed of 5.0 m/s to the right. Assume that $R = 5.0$ Ohms, $L = 0.20$ m, and that a uniform magnetic field of 3.5 T is directed into the page. Calculate the magnitude of the applied force pulling the bar. (Neglect the mass of the bar.)

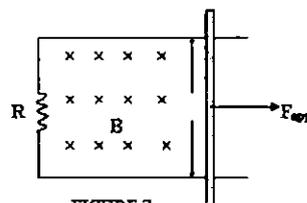


FIGURE 7

- (a) 0.25 N
- (b) 0.92 N
- (c) 1.5 N
- (d) 0.73 N
- (e) 0.49 N