Homework Problem Set #11

(Due date: 2011/06/01)

The full score is <u>50 points</u>.

- 1) (10 points) Problem **P.6–36**.
- 2) (10 points) Problem **P.6–39**.
- (10 points) Problem P.6–45. Instead of deriving analytic solution to the force, you just need to specify the direction of force exerted on the circular loop. Justify your answer.
- 4) (10 points) Explain how to distinguish an *n*-type from a *p*-type semiconductor slab by using the Hall effect.

(*Hint*: Refer to Sec. 6-13 of the textbook.)

5) (10 points) As shown in Fig. 1, a loud speaker consists of a permanent magnet and a coil wound around a cylinder between the poles. The coil-cylinder assembly is attached to the apex of a movable cone. Explain the working principle of this loud speaker.



Fig. 1. Cross-sectional view of a loud speaker.