

1.

A 220-V three-phase six-pole 50-Hz induction motor is running at a slip of 3.5 percent. Find:

- (a) The speed of the magnetic fields in revolutions per minute
- (b) The speed of the rotor in revolutions per minute
- (c) The slip speed of the rotor
- (d) The rotor frequency in hertz

2.

A 50-kW, 460-V, 50-Hz, two-pole induction motor has a slip of 5 percent when operating a full-load conditions. At full-load conditions, the friction and windage losses are 700 W, and the core losses are 600 W. Find the following values for full-load conditions:

- (a) The shaft speed n_m
- (b) The output power in watts
- (c) The load torque τ_{load} in newton-meters
- (d) The induced torque τ_{ind} in newton-meters
- (e) The rotor frequency in hertz