



**Faculty of Electrical & Electronics Engineering**  
**DEE3143 Basic Electrical Machine & Power System**

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Name: \_\_\_\_\_

ID: \_\_\_\_\_

Section: \_\_\_\_\_

Date: \_\_\_\_\_

(Failed to complete all the particulars above will be penalized 2 marks)

### QUIZ 5

#### Question

Induction motor parameters:

Voltage	480 (3-phase)
Current	60 (at 0.85 lagging power factor)
Frequency	60
No of poles	4
Horse-power	50

At rated load, the motor has speed of 1767rpm. The stator copper loss is 2kW, the core loss is 1800W and the friction loss is 600W. Draw the power flow diagram and analyze the following:

- i. The synchronous speed of the motor
- ii. The percent of slip (at rated load)
- iii. The rotor frequency (at rated load)
- iv. The input power of the motor
- v. The air-gap power (Rotor input power)
- vi. The power transform from electrical to mechanical
- vii. The power output
- viii. Induction motor's efficiency

**[10 marks]**