

1. اختبار اقرار اربع مرار

Kafrelsheikh University

Faculty of Engineering

Subject: **Electrical testing3**

Year: Fourth Electrical power (R. 2007)

Exam Date: 3/1/2017



Final Exam of 1st semester-2016-2017

Department of Electrical Engineering

course code: EPM4014 Full Mark: 60 Marks

number of pages: 2 Time allowed: 3 hours

Attempt all question

Q1:

(15 Mark)

- What is the effect of starting of induction motor on connected line?
- Why the starting torque of squirrel induction motor is low
- Discuss briefly the importance of the capacitor bank connects at the terminals of the induction generator.

Q2:

(15 Mark)

- Why is the field producing winding of a three phase induction motor made stationary?
- Describe the speed control tests procedure of the induction motor using rotor resistance?
- The rotor of a 4-pole, 50-Hz slip-ring induction motor has a resistance of 0.30Ω per phase and runs at 1440 rpm, at full load. Calculate the external resistance per phase which must be added to lower the speed to 1320 rpm, the torque being the same as before.

Q3:

(15 Mark)

- Why is the air gap between the rotor and stator of a three phase induction motor kept as short as possible?
- A 15 h.p. (11.2 kW), 3- ϕ , 6-pole, 50-HZ, 400-V, Δ -connected induction motor runs at 960 r.p.m. on full-load. If it takes 86.4 A on direct starting, find the ratio of starting torque to full-load torque with a star-delta starter. Full-load efficiency and power factor are 88% and 0.85 respectively.

Q4:

(15 Mark)

- Describe the tests that used to determine the actual value of induction motor parameters?

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- b- A 110-V, 3- ϕ , star-connected induction motor takes 25 A at a line voltage of 30 V with rotor locked. With this line voltage, power input to motor is 440 W and core loss is 40 W. The d.c. resistance between a pair of stator terminals is 0.1 Ω . If the ratio of a.c. to d.c. resistance is 1.6, find the equivalent leakage reactance/phase of the motor and the stator and rotor resistance per phase.
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With my best wishes
Dr. Eng./Mohamed I. Abd EL_Wanis