(b) How would you determine circle diagram of a 3-phase induction motor experimently?

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9. (a) A six pole, 50 Hz, 3-phase induction motor running on full load and with a 4% slip, develops a torque of 15.21 kg-m at its pulley rim and gross mechanical power is 15200 watts. The friction and windage losses are 200W and stator cu-loss and iron loss are 1620 watts. Calculate

(i) rotor copper loss and

(ii) the efficiency at full load.

(b) Discuss the different methods of speed control of 3-phase induction motor.

10. Write short notes on any two :

(a) Crawling & cogging

(b) Double cage induction motor

(c) Starting methods for 3-phase induction motor.

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EE/EX - 404 (NGS)
B.E. IV Semester
Examination, December 2012
Electro Mechanical Energy Conversion - I
(Non Grading System Only)

Time : Three Hours

Maximum Marks : 70/100

Note: (1) Attempt *five* questions.
(2) All questions carrying equal marks.

1. (a) Draw the vector diagram to represent conditions in single phase transformer supplying a load at

(i) Lagging power factor and

(ii) Leading power factor

(b) Draw the equivalent circuit for a single phase 1100/220V transformer on which the following results were obtained:

(i) 1100V, 0.5A, 55W on primary, secondary being open circuited

(ii) 10V, 80A, 400W on low voltage side, high voltage being short circuited.

Calculate the voltage regulation for the above transformer when supplying 100A at 0.8 power factor logging.

5. Discuss the principle working of-

   i) Klystron tube

   ii) MASER

6. Explain the following:

   i) Velocity modulation

   ii) Avalanche effect

   iii) Gun effect

7. a) Discuss the characteristics of TTL with schottky devices.

   b) Explain the working of CMOs and their transfer characteristic.

8. Write short notes on any two:

   a) BWO

   b) ECL logic family

   c) CMOs inverter

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