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Total No. of Questions : 09

B. Tech. (EE) (Sem.–4th)

ELECTRICAL MACHINERY-II

Subject Code : BTEEE-401 (2011 Batch)

Paper ID : [A1209]

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.

SECTION-A

1. **Answer briefly :**

a) Why induction motor is called generalized transformer?

b) A slip ring induction motor runs at 290 rpm at full load, when connected to 50 Hz supply. Determine the number of poles and slip.

c) How do changes in supply voltage and frequency affect the performance of an induction motor?

d) Give importance of double cage induction motor.

e) What happens when single phasing occurs when three phase induction motor is running?

f) How does the slip of induction motor varies with load?

g) Define crawling phenomenon in induction motor.

h) What is a universal motor?

i) Why do hybrid stepper motors have many phases?

j) Enumerate properties of linear induction motor.

SECTION-B

2. Draw and discuss the torque slip characteristics
motor.

3. What is slip speed? Describe effect of voltage inje
a slip ring induction.

4. Discuss the isolated and grid mode operation
generator.

5. Explain construction and principle of operation of

6. With the help of phasor diagram discuss the wo
induction run single phase induction motor.

SECTION-C

7. A 3 phase, Y connected, 220 V (line to line),
induction motor has the following parameter valu
to the stator

$R_1 = 0.294$, $R_2 = 0.144$, $X_1 = 0.503$, $X_2 = 0.20$

The total friction, windage and core losses
constant at 403 W, independent of load. For a
speed, output torque, power, stator current, pow
when the motor is operated at rated voltage and

8. (a) Discuss the construction and principle of ope

(b) Describe the salient features of shaded pole

Write short notes on:

(a) Parameter estimation of polyphase induction

(b) Characteristics of 3 phase self excited inducti