8E4110

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B. Tech. VIII Sem. (Main/Back) Exam., April, 2015

Electrical Engineering

8EE2 Electric Drives and Their Control

Common for 8EE2, 8EX2

Time: 3 Hours **Maximum Marks: 80**

Min. Passing Marks: 24

Instructions to Candidates:

*Attempt any **five questions**, selecting **one question** from **each unit**. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL 2. NIL

UNIT – I

Q.1 (a) Discuss loop configurations of drives. [6]

(b) Explain speed torque conventions & multi quadrant operation. [10]

OR

Q.1 What do you mean by steady state stability. Derive equivalent values of drive parameters. [16]

UNIT – II

Q.2 (a) Define the term "starting". Differentiate between regenerative braking, dynamic braking & plugging. [10]

(b) What are speed torque curves? [6]

OR

Q.2 (a) Explain the construction & working of controlled DC drives. [8]

(b) What are power limitation occur in armature voltage? [8]

UNIT – III

Q.3 Explain the techniques of various frequency control from voltage source. [16]

OR

Q.3 Discuss the operation & significance of voltage source inverter (VSI) control. [16]

UNIT – IV

Q.4 Explain the following terms- [8×2=16]

(a) Cycloconverter control

(b) CSI control

OR

Q.4 Differentiate Stator Scherbius drive and static Kramer drive. Give the applications of these drives. [16]

UNIT – V

Q.5 Explain (with suitable diagrams) the dynamic & regenerative braking of synchronous motor with VSI. [16]

OR

Q.5 Write short note on **any two** of the following: [8×2=16]

(a) VSI fed self controlled synchronous motor drive.

(b) Current source inverter.

(c) Speed torque characteristics for regenerative braking.
