Question Paper Code: 36401

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Sixth Semester

Electrical and Electronics Engineering

01UEE601 - ELECTRIC DRIVES AND CONTROL

(Regulation 2013)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. What are the three modes of operation of an electrical drive?

2. Drive the equations governing motor load dynamics.

3. Write down the speed - torque relation for single phase fully controlled converter fed DC motor in continuous conduction mode.

4. What is time ratio control?

5. List out the different methods of speed control of 3 phase induction motors.

6. What is the significance of field weakening mode control in induction motor drive system?

7. What is meant by power factor control?

8. Explain power factor control of synchronous motor with relevant vector diagram.

9. What is field weakening mode control in dc drives?

10. Name any two simulation packages used for drive systems.

PART - B (5 x 16 = 80 Marks)

11. (a) Explain the multi-quadrant operation of the electric drive with the help of Hoist Load. (16)

Or

(b) (i) Classify the electrical loads according to the speed-torque characteristics and explain with examples. (8)

(ii) Explain the multi-quadrant operation of the electric drive with the help of Hoist Load. (8)

12. (a) With neat sketches explain about the 3phase controlled rectifier fed DC drives. (16)

Or

(b) Explain the operation of four quadrant chopper control in dc drives. (16)

13. (a) Explain about VSI induction motor drives and also closed loop control for induction motor drives. (16)

Or

(b) Explain about V/ F control in Induction motor. (16)

14. (a) Explain static scherbius drive operation in detail with necessary diagram and equations. (16)

Or

(b) With necessary diagrams explain the vector control of induction motor drives. (16)

15. (a) Derive the transfer function of DC motor-load system. (16)

Or

(b) Discuss the current controller design using (i) P controller and (ii) PI controller for separately excited DC motor drive system. (16)

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