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Question Paper Code: 36031

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

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. What is CLC in chopper fed drive?
4. What is time ratio control?
5. List out the different methods of speed control of 3 phase induction motors.
6. What are the merits and demerits of stator voltage control?
7. What is meant by power factor control?
8. What is self control of synchronous motor drive?
9. Name any two simulation packages used for drive systems.
10. Compare VSI fed drives with CSI fed drives.

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) Derive the mathematical condition to obtain steady state stability of equilibrium point. (16)

12. (a) Explain in detail the operation and steady state analysis of single phase fully controlled converter fed separately excited dc motor drive in continuous and discontinuous conduction mode. (16)

Or

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

13. (a) Explain about variable frequency control in induction motor drives. (16)

Or

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

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

Or

(b) Explain self-control of synchronous motor drive operated with constant margin angle control. (16)

15. (a) Derive the transfer function of a separately excited DC motor load converter system. (16)

Or

(b) Explain closed loop operation of armature voltage control method with field weakening mode control in detail. (16)
