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**R 3331**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2007.

Third Semester

Mechanical Engineering

EE 1213 — ELECTRICAL DRIVES AND CONTROLS

(Common to Production Engineering)

(Regulation 2004)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is meant by electrical drive?
2. Draw the block diagram of an electrical drive system.
3. Draw the mechanical characteristics of DC series motor.
4. Define plugging in three phase induction motor.
5. Why a starter is necessary for a DC Motor?
6. Name the various types of starters commonly used for starting an induction motor.
7. What is static Ward-Leonard drive?
8. State the advantages of DC chopper drives.
9. Mention some of the merits and demerits of ac drives.
10. What is meant by v/f control?

PART B — (5 × 16 = 80 marks)

11. (a) Explain different types of electric drives and its applications to industry.

Or

- (b) What are the different classes of motor duty and explain in detail?

12. (a) What are the different electrical braking methods used in electrical drives? Explain any one method applied to DC shunt motor. (16)

Or

- (b) Draw and explain the torque — speed characteristic of three phase induction motor with necessary equation. (16)
13. (a) Describe the principle of starting of DC shunt motor using power and control circuit with neat circuit diagram. (16)

Or

- (b) What do you understand by the term soft start? Explain the soft start method employed for induction motor? (16)
14. (a) Discuss in brief various conventional methods of speed control of DC motors. (16)

Or

- (b) Draw and explain some of the commonly used controlled rectifier circuits for DC drive.
15. (a) Explain the method of speed control of three phase induction motor by
- (i) Stator voltage control (8)
  - (ii) Frequency control (8)

Or

- (b) Explain with neat sketch the static Kramer variable speed drive system used for slip power recovery.
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