

G 1062

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Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2015

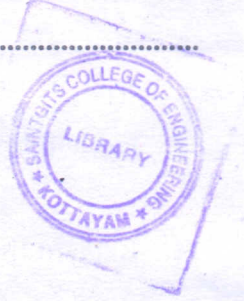
Seventh Semester

Branch : Electrical and Electronics Engineering

EE 010 703—DRIVES AND CONTROL (EE)

(New Scheme—2010 Admission onwards)

[Improvement/Supplementary]



Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 3 marks.

1. What are the different parts of electrical drives ? Draw the block diagram.
2. Discuss on the four quadrant operation of chopper-fed drives briefly.
3. Explain the principle of V/f control.
4. How the dynamic braking is different from regenerative braking ? Discuss.
5. Discuss on any *two* important features of fraction DC drives.

(5 × 3 = 15 marks)

Part B

Answer all questions.

Each question carries 5 marks.

6. Mention the four quadrant modes of operation of a hoist and draw the four quadrant diagram of speed torque characteristics.
7. Discuss on regenerative braking of chopper-fed drives.
8. Explain briefly the principle of stator voltage control of 3-phase induction motor.
9. Discuss on basic principle of vector control.
10. Discuss on conventional AC drives for electric traction.

(5 × 5 = 25 marks)

Part C

Answer all questions.

Each question carries 12 marks.

11. With relevant diagrams, explain the inverter and motoring modes of operation of half controlled bridge rectifier drive.

Or

Turn over

12. Write a note on components of load torques. Explain the working of fully controlled bridge rectifier drive in continuous conduction mode.

13. Explain the single, two and four quadrant operation of chopper-fed drives.

Or

14. Explain the working of dual converter-fed DC motor drives.

Illustrate with waveforms the inverter mode operation of bridge rectifier drive.

15. With relevant diagrams, explain the VSI based induction motor drives. Draw the waveforms to illustrate V/f control.

Or

16. Explain the controller configurations of stator voltage control of three-phase induction motor. Illustrate graphically the constant torque and constant power operation.

17. What do you understand by slip speed control of 3-phase induction motor? Explain principle of slip power recovery scheme.

Or

18. Explain the regenerative braking of VSI-fed drives and explain the basic principle of vector control.

19. Explain the self controlled synchronous motor drive using load commutated thyristor inverter, with neat diagrams.

Or

20. Discuss on important features of fraction drives. Write a note on PWM VSI SCIM drives.

(5 × 12 = 60 marks)

