



# CBGS SCHEME

21MT42

Fourth Semester B.E. Degree Examination, June/July 2023

## Electrical Drivers and Control

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. Explain the factors governing the selection of motors for electric drive. (10 Marks)  
b. Discuss briefly on classes of duty for an electric motor. (10 Marks)

OR

- 2 a. With a neat block diagram and explain the basic elements of an electric drive system. (10 Marks)  
b. Briefly explain the selection of power rating of motors. (10 Marks)

### Module-2

- 3 a. Explain the characteristics of DC series motor with a neat diagram. (10 Marks)  
b. Discuss the regenerative electric braking technique of three phase induction motor. (10 Marks)

OR

- 4 a. Explain the speed torque characteristics of three phase induction motor with neat diagram. (10 Marks)  
b. Explain dynamic braking and plugging electric braking technique of DC motor. (10 Marks)

### Module-3

- 5 a. With a neat diagram, explain the working of three point starter. (10 Marks)  
b. Draw a neat diagram of a rotor resistance starter of three phase induction motor and also explain its working. (10 Marks)

OR

- 6 a. Explain direct on line starter with a neat diagram. (10 Marks)  
b. Discuss star delta starter of a three phase induction motor. (10 Marks)

### Module-4

- 7 a. Discuss with a neat sketch about half wave controlled rectifier fed DC series motor with Free Wheeling Diode (FWD). (10 Marks)  
b. Explain the Ward-Leonard speed control of DC motor with a circuit diagram. (10 Marks)

OR

- 8 a. Explain speed control schemes of DC series motor with field or flux control method. (10 Marks)  
b. Discuss the chopper control method of speed control of DC motor. (10 Marks)

### Module-5

- 9 a. Explain the static scherbius method of speed control of three phase induction motor. (10 Marks)  
b. Discuss the voltage source inverter fed AC drive speed control of induction motor. (10 Marks)

OR

- 10 a. Describe any two different methods of speed control from stator side used in three phase induction motor. (10 Marks)  
b. Explain the voltage/frequency control of 3 phase induction motor. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.