



Regulation R18

Subject code: 2E8BF

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VIII Semester Supplementary Examinations, April 2024

Electrical Drives

(Electrical and Electronics Engineering)

Maximum Marks: 70

Date: 24.04.2024 Duration: 3 hours

- Note:**
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X2M=20 Marks)

- 1 List the merits and demerits of dynamic braking?
- 2 List the different types of electrical drives.
- 3 What is plugging?
- 4 List the advantages of rotor resistance control
- 5 Define Slip power?
- 6 Explain the control strategies of dc chopper.
- 7 What is meant by V/F control ?
- 8 What is meant by stator voltage control?
- 9 Give the application of self controlled synchronous motor.
- 10 What is meant by margin angle of commutation?

Part-B

Answer All the following questions. (5X10M=50Marks)

- 11 Explain in detail the operation of a 1-phase Semi converter feeding a d.c series motor with reference to voltage and current waveforms, assume motor current is continuous and draw speed-torque characteristics. [10]

OR

- 12 Explain in detail the operation 3-phase semi converter continuous current operation for separately excited DC motor and Sketch Toque and speed characteristics. [10]
- 13 Derive the expressions for average motor current, ripple in motor current and average torque for chopper fed separately excited D.C motor. [10]

OR

- 14 Describe the three phase four quadrant operation of DC drive using Dual converter. [10]
- 15 Explain the closed loop operation of induction motor with the help of block diagram. [10]

OR

16 Draw the speed-torque characteristics of the poly phase induction motor. Also explain a) motoring b) Generating and c) Breaking region [10]

17 Explain the operation of three phase slip ring induction motor when Scheribus drive is employed. [10]

OR

18 Draw and explain the equivalent circuit of a wound rotor induction motor when voltage is injected in the rotor circuit. [10]

19 With a neat block diagram explain the closed loop operation of synchronous motor drives. [10]

OR

20 Discuss various methods of speed control of Synchronous motor in detail. [10]