

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Supplementary End Semester Examination – Summer 2022

Course: B. Tech.

Branch: Electrical Engineering

Semester: VII

Subject Code & Name: Electrical Drives (BTEEC703)

Max Marks: 60

Date: 22/08/2022

Duration: 3.45 Hrs.

Instructions to the Students:

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in () in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

	(Level/CO)	Mark
Q.1 Solve Any Two of the following.		
A) Explain in detail the various types of electric drives	Understanding	06
B) Draw block diagram of electrical drives and explain its different parts.	Understanding	06
C) Explain four quadrant operation of motor driving hoist load.	Applying	06
Q.2 Solve Any Two of the following.		
A) Explain the choice of selection of the motor for different loads.	Understanding	06
B) Write a brief note on classes of duty for on electric motor in on electric drive	Understanding	06
C) Explain closed loop speed control of multi motor drives.	Understanding	06
Q.3 Solve Any Two of the following.		
A) A 200 V, 875 rpm, 150 A separately excited de motor has an armature resistance of 0.06 Ω. It is fed from a single phase fully-controlled rectifier with an ac source voltage of 220 V, 50 Hz Assuming continuous conduction, calculate (1) firing angle for rated motor torque and 750 rpm (2) firing angle for rated motor torque and (-500) rpm.	Understanding	06
B) Explain the single-phase full wave-controlled rectifier control of DC separately excited drive with waveforms.	Applying	06

- C) Explain breaking technique of DC motor in detail : Applying 06
 1) dynamic breaking 2) Regenerative breaking

Q.4 Solve Any Two of the following.

- A) Explain slip power recovery scheme for induction motor drive Understanding 06

- 1) Static scherbius drive
 2) Static Kramer drive

- B) Explain operation of VSI fed induction motor drive. Understanding 06

- C) Discuss variable frequency control of induction motor drive. Draw relevant speed torque character sties. Understanding 06

Q.5 Solve Any Two of the following.

- A) Draw the block diagram of variable frequency control of multiple synchronous motor drive and explain in brief. Understanding 06

- B) Explain in detail drives for cement mills application. Understanding 06

- C) Explain in brief drives required for various stages in textile mills Applying 06

*** End ***