DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Winter Examination – 2022

Course: B. Tech. **Branch: Electrical Engineering** **Semester :7th**

Subject Code & Name: BTEEC703/ Electrical Drives

Max Marks: 60 **Date: 01-02-2023** **Duration: 3 Hr.**

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)	Marks
Q. 1	**Solve Any Two of the following.**		**12**
A)	What is an Electrical Drive system? Explain Basic structure of electrical drives.	**Understand**	**6**
B)	Derive the fundamental torque equation of electric drive.	**Evaluate**	**6**
C)	Explain Multi-Quadrant operation of Electrical Drive with suitable example.	**Remember**	**6**
Q.2	**Solve Any Two of the following.**		**12**
A)	Explain the working of close loop speed control scheme of electric drive with inner current loop.	**Understand**	**6**
B)	Discuss the various modes of operation of electric drives along with drive classification.	**Remember**	**6**
C)	Explain in detail the "Classes of motor duty".	**Knowledge**	**6**
Q. 3	**Solve Any Two of the following.**		**12**
A)	Explain the working of dual converter fed DC drive system.	**Understand**	**6**
B)	Explain the working of single-phase full converter fed DC motor drive. Draw the speed torque characteristic for different firing angles.	**Evaluate**	**6**
C)	Explain basic characteristics of DC Motor.	**Remember**	**6**
Q.4	**Solve Any Two of the following.**		**12**
A)	How does a "Slip power recovery scheme" works in three phase Induction motor.	**Knowledge**	**6**
B)	Discuss the multiquadrant operation of Induction motor drives fed from voltage source inverters.	**Understand**	**6**
C)	Why starters are used in three phase Induction motors? Explain different type of starters used in three phase Induction motors.	**Knowledge**	**6**

Q. 5	**Solve Any Two of the following.**		**12**
A)	Explain the working of load commutated inverter fed synchronous motor drive in detail.	**Remember**	**6**
B)	Discuss the close loop control of synchronous motor drive.	**Understand**	**6**
C)	Amongst the following industries explain the working of drives used for specific applications for any one industry in detail: (i)Textile mill (ii) Steel Rolling mill (iii) Cement mill (iv) Sugar mill	**Knowledge**	**6**

***** End *****