DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Summer-2023

Course: B. Tech. **Branch: Electronics Engineering** **Semester: IV**

Subject Code & Name: BTES401& Electrical Machines and Instruments

Max Marks: 60 **Date: 13-07-2023** **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)	Explain the Construction of a DC Machine with a neat diagram	CO 1	6
B)	Describe any two characteristics of a DC generator.	CO 2	6
C)	Derive the equation of EMF for a DC Machine. State clearly the meaning and units of the symbols used.	CO 1	6
Q.2	**Solve Any Two of the following.**		**12**
A)	Explain the Construction and working principle of a 3-phase induction motor.	CO 1	6
B)	What is hunting? Explain its causes and prevention in synchronous motors.	CO 3	6
C)	What are the main components of a synchronous motor? list the several applications for synchronous motors.	CO 4	6
Q. 3	**Solve Any Two of the following.**		**12**
A)	Explain the working of a servo motor with its principle	CO 2	6
B)	Explain the operation of a three-phase variable reluctance motor.	CO 2	6
C)	Describe the Difference between Stepper Motor and Servo Motor in ten points.	CO 2	6
Q.4	**Solve Any Two of the following.**		**12**
A)	Explain the strain gauge transducer with neat diagrams.	CO 4	6
B)	What is signal conditioning? Explain any one type of signal conditioning.	CO 4	6
C)	Explain the construction and working of the LVDT.	CO 4	6
Q. 5	**Solve Any Two of the following.**		**12**
A)	Define vibration, electrical telemetry, thickness, humidity, and thermal conductivity with one example in terms of electronics.	CO 4	6

B)	Define telemetry. Explain the telemetry system using a neat block diagram.	CO 5	6
C)	Explain the X-Y Recorder and list its applications.	CO 4	6

***** End *****