

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Winter Examination – 2022

Course: B. Tech. Branch : Electrical Engineering Semester :VII

Subject Code & Name: BTEEE704B & Electrical Traction and Utilization

Max Marks: 60

Date: 07/02/2023

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 are the requirement of Ideal Traction System.	(L2/CO1)	6
B) Classify Track Electrification and explain any one in detail?	(L2/CO1)	6
C) Write a short note on Various choices of Traction System Drive?	(L2/CO1)	6
Q.2 Solve Any Two of the following.		12
A) Sketch the Block Diagram of AC Locomotive and Explain its working with each component used in it.	(L3/CO2)	6
B) Calculate Sag and Tension for trolley wire at Equal Level Support?	(L3/CO2)	6
C) What are the types of current Collection system used in Electrical Traction? Explain any one current collection system.	(L2/CO2)	6
Q. 3 Solve Any Two of the following.		12
A) List out the Desirable Characteristics of Traction Motor. Interpret Suitability of DC series motor for traction application?	(L3/CO3)	6
B) Describe the Linear Induction motor with labelled sketch, Advantages and Limitation?	(L3/CO3)	6
C) Write short note on Repulsion motor .	(L2/CO3)	6
Q.4 Solve Any Two of the following.		12
A) What do you mean by Crest, average and schedule speed? And also list out and describe factors affecting schedule speed?	(L2/CO4)	6
B) Explain the duty cycle of traction drives with the help of speed-, torque- and power-time curve?	(L2/CO4)	6
C) What are the design consideration for Indoor and outdoor Lighting.	(L2/CO6)	6

Q. 5 Solve Any Two of the following.		12
A) Derive expression of tractive effort for propulsion of train?	(L4/CO5)	6
B) Why Electrical Braking is Preferred over Mechanical Braking?	(L4/CO5)	6
C) Elaborate the procedure for designing factory lighting ?	(L4/CO6)	6

***** End *****