



GUJARAT TECHNOLOGICAL UNIVERSITY
BE – SEMESTER VIII(OLD) • EXAMINATION – WINTER 2017

Subject Code:180902**Date: 02-11-2017****Subject Name: Electrical Power Utilization****Time: 02:30 pm to 05:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Discuss major factors to be considered while selecting an electric drive. **07**
 (b) What is a Speed-Time curve? Discuss briefly the distinct period in a typical speed time curve of a train running on main line. **07**
- Q.2** (a) Discuss the advantages and disadvantages of electrical drives. **07**
 (b) Explain following terms clearly. **07**
 (1) Tractive effort. (2) Co efficient of adhesion.
 (3) Train resistance (4) Specific energy consumption of train.
- OR**
- (b) Write technical note on "Load equalization and flywheel". **07**
- Q.3** (a) What do you understand by Tractive efforts? Derive the expression for the same. **07**
 (b) Compare group drive with individual drive. **07**
- OR**
- Q.3** (a) What is Electric Braking? Explain regenerative braking in detail. **07**
 (b) Draw and discuss Speed-Time curves for Urban, Sub-urban and Main Line services. **07**
- Q.4** (a) Describe running characteristics of DC series and shunt motors. **07**
 (b) Discuss various methods of Electric heating and explain any one in brief. **07**
- OR**
- Q.4** (a) Discuss various speed control methods of three phase induction motor in brief. **07**
 (b) Explain Induction heating in brief. **07**
- Q.5** (a) State Faraday's law of electrolysis and explain them clearly. **07**
 (b) Write a technical short note on Arc welding. **07**
- OR**
- Q.5** (a) State and discuss various types of resistance welding processes. **07**
 (b) Explain laws of Illumination. **07**

