

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (OLD) EXAMINATION – WINTER 2018****Subject Code:150906****Date: 30/11/2018****Subject Name: Electrical Power Utilization And Traction****Time: 10:30 AM TO 01:00 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) Explain four quadrant operation of a drive with suitable diagrams. **07**
(b) Explain electric drives and its classification in detail. **07**
- Q.2** (a) State the types of electric braking. Explain any one in detail. **07**
(b) Explain different methods of controlling speed of d.c. series motor. **07**
- OR**
- (b) State the methods of speed control of 3- ϕ induction motor and explain any one method in detail. **07**
- Q.3** (a) Explain the terms dead weight, accelerating weight and adhesive weight in a locomotive. Explain the factors affecting specific energy consumption. **07**
(b) Compare AC and DC traction system. **07**
- OR**
- Q.3** (a) Explain the trapezoidal speed – time curve with necessary equations. **07**
(b) Define average speed, crest speed and schedule speed and discuss the factors which affect schedule speed of a train. **07**
- Q.4** (a) Discuss the process of electric arc welding. **07**
(b) Give the classification of welding. Explain resistance welding. **07**
- OR**
- Q.4** (a) Explain dielectric heating **07**
(b) Explain the design procedure of heating element. **07**
- Q.5** (a) State and explain square law of illumination **07**
(b) Explain electro deposition and explain factors affecting it. **07**
- OR**
- Q.5** (a) Explain Incandescent lamp with necessary diagram. **07**
(b) Explain Faraday's laws of electrolysis. **07**
