

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VIII (OLD) EXAMINATION – WINTER 2018****Subject Code: 180902****Date: 15/11/2018****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) Discuss various speed control methods of three phase induction motor in brief **07**
- Q.2** (a) Define electric braking and explain any two methods of it detail. **07**  
(b) Write technical note on “Load equalization and flywheel”. **07**
- OR**
- (b) Compare group drive with individual drive. **07**
- Q.3** (a) What is tractive effort? Explain it with necessary mathematical equations. **07**  
(b) A train is required to run between two stations 1.6 km apart at an average speed of 40 kmph. The run is to be made to a quadrilateral speed- time curve. If the maximum speed is to be limited 64 kmph, acceleration to 2 kmphs and coasting and braking retardation to 0.16 kmphs and 3.2 kmphs respectively, determine the duration of acceleration, coasting and braking period. **07**
- OR**
- Q.3** (a) Draw a diagram of A.C. Electric locomotive and explain function of each part of it. **07**  
(b) Draw and explain speed time curve for train movement. Also define: 1) Crest speed 2) Average speed and 3) Schedule speed. **07**
- Q.4** (a) Explain following term (1) co-efficient of adhesion (2) schedule speed (3) specific energy consumption. **07**  
(b) Explain Induction heating in brief. **07**
- OR**
- Q.4** (a) What is electroplating? Explain factors governing electroplating. Explain applications of electroplating. **07**  
(b) Define welding and also explain Resistance electric welding. **07**
- Q.5** (a) State and explain laws of illumination. **07**  
(b) Explain different factors to be considered while designing lighting scheme. **07**
- OR**
- Q.5** (a) State and explain Faraday’s laws of electrolysis. Also define current efficiency and energy efficiency. **07**  
(b) Write a technical short note on Arc welding. **07**

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