

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII (OLD) EXAMINATION – SUMMER 2019****Subject Code: 180902****Date: 09/05/2019****Subject Name: Electrical Power Utilization****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) State and explain advantages of electric traction system **07**
(b) Explain the different methods of speed control of D.C. shunt motor. **07**

- Q-2** (a) Explain regenerative braking of DC motor. **07**
(b) Classify the different methods for starting of 3-ph squirrel cage induction motor. Explain DOL starter with neat sketch. **07**

OR

- (b) Draw and explain the torque speed characteristics of 3-ph induction motor. **07**

- Q-3** (a) Define average speed, crest speed and schedule speed and discuss the factors which affect schedule speed of a train **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 simplified 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 periods. **07**

OR

- (a) Explain coefficient of adhesion and factors affecting the coefficient of adhesion. **07**
(b) Draw and explain the block diagram of electric locomotive. **07**

- Q-4** (a) Classify electric welding and Explain resistance welding. **07**
(b) Explain direct arc furnace with neat sketch and give its applications. **07**

OR

- (a) Explain dielectric heating. State applications of dielectric heating. **07**
(b) Explain power supply for arc welding. **07**

- Q-5** (a) Explain process of electroplating. **07**
(b) State and explain laws of illumination. **07**

OR

- (a) Explain fluorescent lamp with diagram. **07**
(b) Explain the following terms: **07**
1) Luminous intensity.
2) Plane angle
3) Candle power.
4) Lumen