

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– III(OLD) EXAMINATION – SUMMER 2019****Subject Code: 131901****Date: 15/06/2019****Subject Name: Electrical Machines And Electronics****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) List out various parts of DC Generator and explain function of each part with necessary diagram. **07**
(b) Classify DC motors with chart. Also explain characteristics of DC shunt motor. **07**
- Q.2** (a) Explain torque-slip and torque-speed characteristics of 3- ϕ induction motor. **07**
(b) Explain necessity of starters. Explain 3-point starter for DC shunt motor with neat diagram. **07**
- OR**
- (b) Describe working principal of shaded pole type 1- ϕ IM with suitable diagram. **07**
- Q.3** (a) What are the conditions required to be fulfilled for parallel operation of two synchronous generators? Explain any one method of synchronizing. **07**
(b) How voltage, current and power can be measured using C.T. and P.T.? **07**
- OR**
- Q.3** (a) An 8-pole, 3-phase, 50 Hz, induction motor is running at a speed of 710 rpm with an input power of 35 kW. The stator losses at this operating condition are known to be 1200 W while the rotational losses are 600 W. find (i) rotor copper loss, (ii) the gross torque developed, (iii) the gross mechanical power developed, (iv) the net torque and mechanical power output. **07**
(b) Give comparison of AC and DC transmission system. **07**
- Q.4** (a) State various methods for power factor improvement. Explain any two methods in detail. **07**
(b) Write short notes on substation equipments. **07**
- OR**
- Q.4** (a) Classify full wave rectifier. Explain any one in detail. **07**
(b) What is an OP-Amp? And explain operating modes of OP-Amp. **07**
- Q.5** (a) Give the symbols, Boolean expression and logical operation for the logic gates. **07**
(b) Draw and explain internal architecture of 8085 microprocessor. **07**
- OR**
- Q.5** (a) Write short note on tariff. **07**
(b) Explain working principal of single phase transformer with its construction. **07**
