

GUJARAT TECHNOLOGICAL UNIVERSITY**B.E. Sem. IV Examination June - 2011****Subject code: 142401****Subject Name: Electro Mechanical Energy Conversion-I****Date: 06/06/2011****Time: 10:30am To 1:00pm****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 the essential parts of Practical DC Generator and explain each in brief. **07**
(b) Derive an emf equation of a Generator using standard notation. **07**
- Q.2** (a) Define the following terms: 1. Pole Pitch 2. Commutation 3. Speed Regulation 4. Internal Characteristics 5. Transformer 6. Turns Ratio 7. Regulation of Transformer **07**
(b) List the Characteristics of DC Generator and Explain each one in detail. **07**
- OR**
- (b) List the Characteristics of DC Motor and Explain each one in detail. **07**
- Q.3** (a) Compare the following Terms : **07**
1. Short Shunt and Long shunt Compound Generator
2. Core Type and Shell Type Transformer.
(b) Explain Total Loss in DC Generator **07**
- OR**
- Q.3** (a) Compare the following Terms : **07**
1. OC and SC Test of Transformer
2. Armature Control and Field Control Method of Speed control of DC Motor.
(b) Derive an emf equation of Transformer with standard notation. **07**
- Q.4** (a) Why Starter is necessary in DC Motor? List the types of starter and Explain Three Point Starter with neat diagram. **07**
(b) Explain construction and working of 3 Φ Induction Motor with production of 3 Φ Rotating Magnetic Field. **07**
- OR**
- Q.4** (a) Explain Working of Transformer on Load. **07**
(b) Derive the equation for induced emf of an alternator. **07**
- Q.5** (a) Write a short note on: Schrage Motor **07**
(b) Define Voltage Regulation of Alternator. Explain synchronous impedance method for determining voltage regulation **07**
- OR**
- Q.5** (a) Write a Short note on: Stepper Motor. **07**
(b) How DC Servo Motor differs from DC motor? Explain the construction and torque speed characteristics of DC servo motor. **07**
