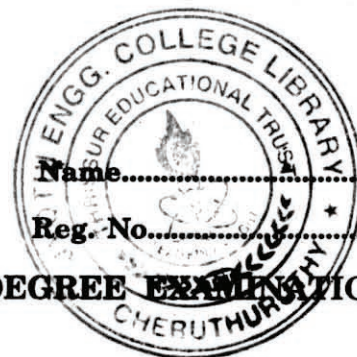


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**SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
MARCH 2013**

EC 04 605—POWER ELECTRONICS

(2004 Scheme)

Time : Three Hours

Maximum : 100 Marks

Short Type Questions.

1. (a) Draw the basic structure of power diode and explain the operation in brief.
- (b) Draw the structure of TRIAC and explain its operation in brief.
- (c) Explain the operation of single-phase halfwave controlled rectifier with RL load and flywheel diode.
- (d) Draw the voltage and current waveforms of inverter with inductive load.
- (e) Explain in brief the operation of single-phase SCR regulator with diode bridge.
- (f) Explain the speed control of induction motor by change of number of poles using single-delta to double-star method.
- (g) Write in brief the operation of buck-boost regulators.
- (h) Write few characteristics of UPS.

(8 × 5 = 40 marks)

Either or Type 15 marks questions.

- 2 (A) Explain the switching characteristics of power BJT.

Or

(B) Explain the different methods of turning-off SCR with circuit diagrams.
3. (A) Explain the operation of full wave controlled rectifier with RL load.

Or

(B) Draw the circuit diagram of parallel single-phase inverter and derive its output voltage and current equations.
4. (A) Explain the operation single-phase a.c. regulator with RL load.

Or

(B) Explain the operation of step-down chopper circuit with diagram.
5. (A) Explain the operation of SMPS with diagram and give detailed analysis.

Or

(B) Explain the operation of off-line UPS with block diagram and the necessary circuits with circuit diagrams.

(4 × 15 = 60 marks)