

**SUBJECT CODE NO:- E-8013**  
**FACULTY OF ENGINEERING AND TECHNOLOGY**  
**M.E. (Electrical Power Systems) Examination Nov/Dec 2017**  
**Advanced Power Electronics**  
**(Revised)**

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
1. Attempt any two questions from each section.
  2. Assume suitable data wherever necessary.
  3. Draw neat circuit diagrams and waveforms to aid your explanations.

**Section- A**

- Q.1 a) Explain in details construction and operating characteristic of SCR. 10
- b) Explain in details construction and operating characteristic of Power BJT. 10
- Q.2 a) Explain the principle of operation and different operating modes of Single-phase fully controlled AC-DC converter with RLE load. 10
- b) Explain the principle of operation and different operating modes of Single-phase Dual-converter. 10
- Q.3 a) Explain the principle of operation and different operating modes of Half-Bridge DC/DC converter. 10
- b) Explain the principle of operation and different operating modes of Full-Bridge DC/DC converter. 10

**Section- B**

- Q.4 a) Explain in details Sinusoidal and Modified Sine wave Pulse width Modulation. 10
- b) Explain in details Space Pulse width Modulation for Tree-Phase Inverters. 10
- Q.5 a) Explain in details the principle of operation of Single-Phase AC controller with Inductive load. 10  
Derive expression for average thyristor current
- b) Explain in details the principle of operation of Three Phase Current Source Inverter. 10
- Q.6 a) Discuss the detailed principle of operation of Series-Loaded Resonant half-bridge DC-DC converter. 10
- b) Discuss the detailed principle of operation of Parallel-Loaded Resonant half-bridge DC-DC converter. 10