Roll No .....

EI/IC - 8403

B.E. VIII Semester

Examination, June 2016

Advanced Industrial Electronics

(Elective-IV)

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
ii) All parts of each question are to be attempted at one place.
iii) All questions carry equal marks, out of which part A and B (Max. 50 words) carry 2 marks, part C (Max. 100 words) carry 3 marks, part D (Max. 400 words) carry 7 marks.
iv) Except numericals, Derivation, Design and Drawing etc.

1. a) List the advantages of IGBT.
   b) Compare power MOSFET with BJT.
   c) What is meant by secondary breakdown.
   d) Discuss characteristics of Power MOSFET as a switching device.

   OR

   Explain in detail about thyristor turn on and their methods.

2. a) Compare SMPS with linear mode power supply.
   b) What is meant by step down and step up chopper?
   c) Explain the principle of operation of DC-DC step down chopper with suitable diagram.
   d) With the help of neat circuit diagram and associated waveform, discuss the operation of Buck converter.

OR

Discuss the need for reduction of harmonics in inverters. List the various method for reduction of harmonics.

3. a) What is meant by PWM techniques?
   b) List the advantages of current source inverters.
   c) List the applications of converters.
   d) Explain the principle and operation of currents source Inverter.

   OR

   Explain the voltage control of Inverters using PWM techniques.

4. a) What are the applications of UPS?
   b) What is Induction Heating?
   c) Explain the principle of metal cutting.
   d) Explain the operation of Off line and On line UPS in detail.

   OR

   Explain the operation of Induction heating.

5. a) Explain the principle of vector controlled.
   b) List the advantages of DSP in machine drives.
   c) What are the applications of microprocessors in motor drives?
   d) With necessary diagram, explain the theoretical principles of stator voltage control.

   OR

   Derive the necessary equation for indirect vector control.

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