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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)**M.Tech I Year II Semester (R16) Regular Examinations May/June 2017****ADVANCED POWER SEMICONDUCTOR DEVICES & PROTECTION**

(POWER ELECTRONICS)

(For Students admitted in 2016 only)

Time: 3 hours

Max. Marks:60

(Answer all Five Units 5 X 12 =60 Marks)

UNIT-I

- 1 a. Explain the operating principle of BJT. Also discuss the concept of breakdown in a BJT 6M
- b. Draw and explain in detail about the switching characteristics of BJT. 6M

OR

- 2 a. Enumerate the main differences between BJT and MOSFETs ? 6M
- b. What are the different types of MOSFETs? Bring out the differences among different types of MOSFETs. 6M

UNIT-II

- 3 a. Explain in detail the turn-off process of GTO's. 5M
- b. Draw and discuss the constructional features of GTO's. Also comment on the switching losses that occur in GTO's. 7M

OR

- 4 a. Explain the basic structure and I-V characteristics of IGBTs. 6M
- b. Briefly explain about device limits and safe operating area of an IGBT? 6M

UNIT-III

- 5 a. Explain the structural view of MOS controlled thyristor. 6M
- b. Explain the high voltage Integrated circuits? 6M

OR

- 6 a. How the unwanted electrical signals are generated which give rise to EMI? 6M
- b. Explain the steps involved in the design of a transformer. 6M

UNIT-IV

- 7 a. What is the cause for noise generation? Explain about Common sources of noise in SMPS. 6M
- b. Explain about noise and how it is measured. 6M

OR

- 8 a. Explain about the transformer designing. 6M
- b. Explain in detail about noise due to high frequency transformer. 6M

UNIT-V

- 9** a. Briefly discuss the design procedure for developing heat sinks. 6M
b. Explain about Voltage Protections in detail? 6M

OR

- 10** a. Explain about various protection methods used for power semiconductor devices. 6M
b. Write about thermal modelling of converter? 6M

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