



C14-AEI-303

4216

BOARD DIPLOMA EXAMINATION, (C-14)

OCT/NOV—2015

DAEI—THIRD SEMESTER EXAMINATION

ELECTRONIC DEVICES AND APPLICATIONS

Time : 3 hours ]

[ Total Marks : 80

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PART—A

3×10=30

**Instructions** : (1) Answer **all** questions.

(2) Each question carries **three** marks.

1. Write any three differences between intrinsic and extrinsic semiconductors.
2. List any three applications of a Zener diode.
3. Define rectification.
4. How is the transistor formed?
5. List the operating regions of a transistor.
6. Classify FET's.
7. List any three applications of UJT.
8. Sketch the ISI circuit symbols of SCS, SUS and SBS.
9. List any three applications of SCR.
10. List any three specifications of IC.

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**PART—B**

10×5=50

**Instructions** : (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

- 11.** (a) Distinguish between Avalanche breakdown and Zener breakdown. 6
- (b) Sketch the energy-level diagrams for semiconductors and insulators. 4
- 12.** Explain the working of half-wave rectifier with a circuit diagram and waveforms. Give the expression for peak inverse voltage of a half-wave rectifier.
- 13.** (a) Explain the working principle of a tunnel diode. 5
- (b) Explain the concept of differential amplifier. 5
- 14.** Give the description of common-base and common-emitter configurations of a transistor.
- 15.** Explain the working of a transistor as an amplifier.
- 16.** Explain the working principle of UJT and give the expression for intrinsic standoff ratio.
- 17.** Explain the construction and working of a TRIAC and draw its volt-ampere characteristics under forward and reverse bias.
- 18.** Draw and explain the volt-ampere characteristics of SCR.

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