



C14-AEI-303

4216

BOARD DIPLOMA EXAMINATION, (C-14)
MARCH/APRIL—2016
DAEI—THIRD SEMESTER EXAMINATION
ELECTRONIC DEVICES AND APPLICATIONS

Time : 3 hours]

[Total Marks : 80

PART—A

3×10=30

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

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

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. What are the majority and minority charge carriers in P-type and N-type materials?
2. Classify rectifiers.
3. State the need of filters.
4. Define alpha, beta and gamma factors of a transistor.
5. List any three applications of transistors.
6. List any three applications of FET.
7. Draw the characteristics of UJT.
8. List any three thyristor family devices.
9. Draw the battery charger circuit using SCR.
10. Define IC.

*

PART—B

10×5=50

- Instructions :** (1) Answer any **five** questions.
(2) Each question carries **ten** marks.
(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

- 11.** Describe the formation of P-type and N-type materials and sketch the energy band diagrams.
- 12.** Explain the working of full-wave rectifier with a circuit diagram and waveforms. Give the expression for efficiency of a full-wave rectifier.
- 13.** (a) Draw and explain the operation of a Zener regulator. 5
(b) Draw the circuit symbol of an op-amp and the pin diagram of an IC 741 operational amplifier. 5
- 14.** Explain the working of NPN transistor with a sketch.
- 15.** (a) Compare any five performance characteristics of common base, common emitter and common collector configurations of a transistor. 5
(b) Sketch the output characteristics of a transistor in common emitter configuration and indicate the operating regions. 5
- 16.** Explain the principle of operation of N-channel depletion mode MOSFET with a neat sketch.
- 17.** Explain the construction and working of SCR.
- 18.** Draw and explain the light dimmer circuit using DIAC and TRIAC.

*
