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C14–AEI–303

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BOARD DIPLOMA EXAMINATION, (C–14)

OCT/NOV—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. Sketch the energy level diagrams for conductors, insulators and semiconductors.

2. List any three applications of *P-N* junction diode.

3. Classify filters.

4. Draw the construction symbol and circuit symbol of a *P-N-P* transistor.

5. Draw the common collector transistor configuration.

6. List any three advantages of JFET over BJT.

7. List the types of MOSFET.

8. Sketch the ISI circuit symbols of TRIAC, DIAC and GTO SCR.

9. Draw the light dimmer circuit using DIAC and TRIAC.

10. List any three applications of operational amplifier.

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 working of a *P-N* junction diode with various biasing voltages and sketch its forward and reverse voltage characteristics.

12. Draw and explain the working of clipper and clamper circuits using diodes.

13. *(a)* Distinguish between Zener breakdown and Avalanche breakdown. 5

(b) Write any five comparisons between IC and discrete component circuit. 5

14. Describe the working of a transistor as an amplifier with a circuit diagram.

15. Derive the relationship among alpha, beta and gamma factors.

16. Explain the construction and working of *n*-channel JFET and draw its drain characteristics.

17. Explain the construction and working of a DIAC and draw its volt-ampere characteristics under forward bias and reverse bias.

18. Draw and explain the battery charger circuit using SCR.

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