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C09–EC–303

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BOARD DIPLOMA EXAMINATION, (C–09)

APRIL/MAY—2015

DECE—THIRD SEMESTER EXAMINATION

ELECTRONIC CIRCUITS—I

Time : 3 hours] [*Total Marks* : 80

PART—A 3×10=30

Instructions : (1) Answer **all** questions.
(2) Each question carries **three** marks.
(3) Answer should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Give the advantages of surface mount technology.

2. Compare on-line UPS and off-line UPS.

3. Define ripple factor and give the expression for ripple factor.

4. Mention the applications of Darlington pair circuit.

5. Explain the concept of DC load line briefly.

6. Draw the hybrid equivalent of a transistor in CE mode.

7. List the applications of varactor diode.

8. Draw the characteristic of UJT and indicate regions.

9. Mention the important applications of an operational amplifier.

10. State the advantages of ICs over discrete assembly.

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. *(a)* Explain the operation of simple Zener regulator. 5

(b) Explain the operation of transistor series voltage regulator. 5

12. Draw and describe the working of bridge full-wave rectifier with input and output waveforms.

13. *(a)* Explain the need for proper biasing in amplifier circuits and list the types of biasing circuits. 5

(b) Define stability factor and derive an expression for stability factor of CE configuration using potential divider bias. 5

14. Draw and explain the operation of two-stage RC coupled amplifier with neat circuit and also explain its frequency response with a neat sketch.

15. Explain the construction and principle of operation of enhancement type of *n*-channel MOSFET.

16. Describe the construction and principle of operation of *n*-channel JFET and explain its drain characteristics.

17. *(a)* Draw and explain the differential amplifier circuit. 5

(b) Draw the block diagram of IC 741 and explain each block. 5

18. *(a)* Explain various levels of integration. 5

(b) Describe the fabrication of diode on monolithic IC. 5

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