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C09–EC–303

3235

BOARD DIPLOMA EXAMINATION, (C–09)

MARCH/APRIL—2017

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. Compare online UPS with offline UPS.

2. Draw the block diagram of regulated DC power supply.

3. Define voltage regulation of a power supply.

4. Why is CE configuration widely used in amplifier circuits?

5. Define *h*-parameters, h_{ie} and h_{re}.

6. What is the need for bias stabilization?

7. Define parameters of JFET.

8. List the applications of varactor diode.

9. What are the specifications of ideal op-amp?

10. Classify ICs based on manufacturing process.

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. Explain the working of a center-tapped full-wave rectifier with *C-L-C* filter.

12. *(a)* Draw the circuit diagram of shunt voltage regulator and explain its working. 6

(b) Draw the block diagram of offline UPS. 4

13. *(a)* Draw the two-stage RC-coupled amplifier circuit and explain the working of each element in the circuit. 6

(b) Explain the frequency response characteristics of RC-coupled amplifier. 4

14. *(a)* What are the advantages of emitter follower? 4

(b) Show that the stability factor $S \quad 1$ in fixed bias circuit. 6

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

16. *(a)* Explain the working of UJT. 6

(b) Draw and explain the mutual characteristics of JFET. 4

17. Describe the manufacturing process of monolithic IC.

18. *(a)* What is meant by surface mount technology? Explain briefly. 5

(b) Explain the working of op-amp as integrator and differentiator. 5

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