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C09–EC–303

3235

BOARD DIPLOMA EXAMINATION, (C–09)

OCT/NOV—2014

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. What is the need for regulated power supply?

2. Draw the circuit diagram of bridge rectifier.

3. Define peak inverse voltage. Write the PIV for half-wave and full-wave rectifier.

4. Define gain, frequency response and bandwidth of an amplifier.

5. Classify amplifiers based on frequency, period of conduction and coupling.

6. What is the necessity of multistage amplifier?

7. Write the differences between JFET and MOSFET.

8. What are the advantages of varactor diode over mechanical tuning capacitor?

9. List the applications of linear ICs.

10. What are the ideal op-amp characteristics?

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)* State the need for uninterrupted power supply and list the types of UPS. 5

(b) Draw and explain the block diagram of offline UPS. 5

12. *(a)* Explain operation of CLC FILTER. 5

(b) Compare the performance of half-wave, full-wave and bridge rectifier circuits. 5

13. *(a)* Explain principle of operation of direct coupled amplifier with circuit diagram. 5

(b) Compare different types of coupling. 5

14. *(a)* Draw the fixed biasing circuit and explain. 5

(b) Derive expression of stability factor for fixed biasing. 5

15. Draw the strucure of depletion MOSFET and explain its working. 10

16. *(a)* Classify FETs. 3

(b) Draw and explain the structure of FET. 7

17. Explain how op-amp is used as integrator and differentiator. 10

18. Explain fabrication resistor and capacitor on monolithic IC. 10

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