C09–EC–303

3235

BOARD DIPLOMA EXAMINATION, (C–09)

MARCH/APRIL—2018

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

1. Draw the circuit of full-wave bridge rectifier.

2. Draw the block diagram of off-line UPS.

3. Give the expressions for RMS value, average value and efficiency of an half-wave rectifier.

4. Explain why CE mode is widely used in amplifier circuits.

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

6. Draw the potential divider biasing circuit.

7. Give the construction details of UJT.

8. Compare JFET and MOSFET.

9. Draw the circuit of differential amplifier.

10. Mention the important applications of an 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. *(a)* Explain the operation of simple Zener Regulator. 5

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

12. Explain the operation of *(a)* capacitor input filter, *(b)* series inductor filter and *(c)* CLC filter for a rectifier circuit.

13. Draw the circuit diagram of RC coupled amplifier and explain its working.

14. *(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. 5

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

16. *(a)* Explain the principle of operation of CMOSFET. 5

(b) Explain the principle of working of varactor diode and draw its characteristics. 5

17. *(a)* Explain various levels of integration. 4

(b) Draw the block diagram of IC 741 and explain. 6

18. Describe the manufacturing process of monolithic ICs.

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