



C09-EC-303

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**BOARD DIPLOMA EXAMINATION, (C-09)
MARCH/APRIL—2016
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 block diagram of off-line UPS.
2. Explain briefly the operation of series inductor filter between rectifier circuit and load.
3. Draw the circuit of full-wave, centre-tapped rectifier with capacitor filter.
4. Explain the need for bias stabilization.
5. Classify amplifiers based on frequency, period of conduction and coupling.
6. What is meant by thermal runaway?
7. Draw the equivalent circuit of UJT.

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8. List the ^{*} applications of varactor diode.
9. Mention the important applications of an operational amplifier.
10. List different IC packages.

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) Draw the block diagram of regulated DC power supply and explain the function of each block.
 (b) Draw and describe the working of half-wave rectifier with waveforms.
12. (a) Explain the operation of transistor shunt voltage regulator. 6
 (b) List the types of IC regulator and give the advantages of IC regulators. 4
13. Draw and explain the principle of operation of direct-coupled amplifier and also explain its frequency response.
14. (a) Explain the basic amplifier concept using BJT-CE mode. 5
 (b) Explain the concept of DC and AC load lines briefly. 5
15. Describe the construction and principle of operation of *n*-channel JFET, and explain its drain characteristics.
16. Explain the construction and principle of operation of depletion type of *n*-channel MOSFET.
17. Describe the fabrication of resistor and capacitor on monolithic IC.
18. (a) Draw and explain differential amplifier circuit. 5
 (b) Draw the block diagram of IC 741 and explain each block. 5

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