



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.

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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 $S \approx 1$ 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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