

TED (10)–3053

(REVISION—2010)

Reg. No.

Signature

THIRD SEMESTER DIPLOMA EXAMINATION IN ELECTRICAL AND
ELECTRONICS ENGINEERING—MARCH, 2012

ELECTRONIC DEVICES AND CIRCUITS

[Time : 3 hours

(Maximum marks : 100)

Marks

PART—A

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. Define the term ripple factor.
2. Determine I_B in a transistor for which $\alpha = 0.9$ and $I_E = 1$ mA.
3. What is the function of a filter circuit in a rectifier ?
4. Justify the need of positive feed back in an oscillator.
5. Define a tank circuit.

(5x2=10)

PART—B

II Answer *any five* questions from the following. Each question carries 6 marks.

1. Explain the behaviour of a PN Junction in forward biasing.
2. Analyse the d.c. load line in the CE configuration of a transistor.
3. Develop the circuit of a full wave rectifier using four diodes.
4. Draw the circuit diagram of a regulator using 7805 IC.
5. Define bandwidth, lower and upper cutt off frequencies in the frequency response of an amplifier.
6. Explain the advantage of negative feed back in an amplifier.
7. Develop an astable multivibrator circuit using IC 555.

(5x6=30)

PART—C

(Answer *one* full question from each unit. Each question carries 15 marks.)

UNIT – I

- III (a) Establish the relation between β and α in a transistor circuit. 7
- (b) Explain the reverse bias characteristic of a zener diode. 8

OR

- IV (a) Draw the CE configuration of a transistor and briefly explain its operation. 8
(b) Analyse the behaviour of PN junction during the reverse biasing. 7

UNIT – II

- V (a) With a neat diagram, explain the construction and working principle of H.W rectifier. 7
(b) Explain the working of a negative clipping circuit using diode. 8

OR

- VI (a) Describe the working of a shunt regulator using transistor. 8
(b) Explain the function of a π filter in a rectifier. 7

UNIT – III

- VII (a) Explain the working of a class A power amplifier. 8
(b) Describe the working principle of RC coupled amplifier. 7

OR

- VIII (a) Explain the working of a C.B. amplifier with a neat circuit diagram. 8
(b) Develop a two stage transformer coupled amplifier and briefly explain its operation. 7

UNIT – IV

- IX (a) Explain the working of a bistable multivibrator circuit with transistor. 8
(b) Describe the working of Colpitts oscillator. 7

OR

- X (a) Draw an astab' multivibrator circuit and explain its working. 7
(b) Explain the working of a Hartley oscillator with the help of a circuit diagram. 8
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