

Roll No.

24004

**B. Tech 1st Semester
(Common for All Branches)
Examination – December, 2017**

BASICS OF ELECTRONICS

Paper : ECE-101-F

Time : Three Hours]

[Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, selecting at least *one* question from each Section. Question No. 1 is *compulsory*. All questions carry equal marks.

1. (a) What is barkhausen criteria for oscillations ?

5 × 4 = 20

(b) Why LED's emit light of different colours ?

(c) What is ideal diode ? Write down diode equation.

(d) What is flip-flop ?

(e) Give truth table of OR gate.

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SECTION – A

2. What is semiconductor ? Explain with its types. Why we prefer Si instead of Ge ? 20
3. Explain the terminal characteristics of PN Junction diode and compare it with ideal diode characteristics. 20

SECTION – B

4. (a) Write short note on SMPS. 10
(b) Explain working of Wein Bridge oscillators. 10
5. (a) Discuss characteristics of an ideal op-amp. 10
(b) Explain block diagram of op-amp. 10

SECTION – C

6. Explain function Generator with the help of block diagram. 20
7. (a) Differentiate combinational and sequential circuit. 10
(b) What are Universal Gates ? Explain. 10

SECTION – D

8. (a) Explain different types of segment displays. 10
(b) What is LED ? Discuss its construction and working. Give its advantages and disadvantages. 10

9. Write short notes on :

10 × 2 = 20

- (a) SR flip-flop
(b) Voltage Regulator