July-22-00216

B. Tech. EXAMINATION, 2022

Semester II (CBCS)

FUNDAMENTALS OF ELECTRONICS
ENGINEERING

EC-101

Time : 3 Hours   *Maximum Marks : 60*

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt *Five* questions in all, selecting *one* question from each Section A, B, C and D. Q. No. 9 is compulsory.

Section A

1. Explain the LED and seven segment display in detail.

   10

2. Explain the *p-n* junction diode. Differentiate between half and full wave rectifier.   **10**

Section B

3. Explain N-P-N transistor and what are the CE configuration in detail. **10**

4. Why FET is called as 'voltage operated device' ? Explain the enhancement type MOSFET with diagram. **10**

Section C

5. Explain the RC phase shift and Weinbridge oscillator in detail. **10**

6. Differentiate between inverting and non-inverting operational amplifier. Explain any *one* in detail. **10**

Section D

7. Why binary numbers are important ? Explain the concept of universal gate in detail. **10**

8. Describe the operation of CRO and its applications and what is the role of signal generator. **10**

(Compulsory Question)

9. (a) What do you understand by "race condition" in flip-flop ?

(b) What are the advantages of CMOS logic family over other logic families ?

(c) Which rectifier is mostly used and why ?

(d) What is forbidden energy gap ?

(e) Give the energy band structure if insulator.

(f) What is Doping ?

(g) What are the parts of oscillator ?

(h) Define Zener diode as voltage regulator.

(i) What are signed and unsigned numbers ?

(j) What is sweep time ? **10×2=20**