

Roll No.

3543

**B. Tech. 7th Semester (EE)
(Open Elective-IV)
Examination – May, 2026**

ELECTRONIC PRINCIPLES

Paper : OEC-ECE-451-G

Time : Three hours]

[Maximum Marks : 75

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 *one* question from each Section. Question No. 1 is *compulsory*.
All questions carry equal marks.

- 1.** (a) What is the function of a filter circuit ?
(b) Define threshold voltage in MOSFET.
(c) What is a segment in display devices ?
(d) What is flip-flop ?
(e) Define LED.
(f) What is clock signal ?

$2.5 \times 6 = 15$

3543-150 -(P-3)(Q-9)(26)

P. T. O.

SECTION - A

2. (a) Draw and explain the V-I characteristics of a P-N junction diode. 7.5
(b) Compare half-wave and full-wave rectifier. 7.5
3. Explain the working of a voltage doubler circuit with waveform analysis. 15

SECTION - B

4. (a) Explain the construction and working of a BJT. 7.5
(b) What is electroluminescence? How does it occur in LEDs? 7.5
5. Explain the four modes of TRIAC operation. 15

SECTION - C

6. Draw and label Sixteen segment display. 15
7. (a) Draw the segment labeling (a-g) and explain how digits (0-9) are formed. 7.5
(b) Explain different types of LEDs. 7.5

SECTION - D

8. (a) Explain the role of memory in sequential circuits. 7.5
(b) Define number systems. Explain decimal, binary, octal, and hexadecimal systems. 7.5
9. Explain De Morgan's Theorems with examples. 15