

**2403000502039001**  
**EXAMINATION FEBRUARY-MARCH 2024**  
**BACHELOR OF SCIENCE (NEP) (FIRST YEAR)**  
**(SECOND SEMESTER)**  
**MINOR-ELECTRONICS PAPER – I (THEORY)– LEVEL 3**  
**(SEMICONDUCTOR DEVICES AND LOGIC CIRCUITS)**

[Time: As Per Schedule]

[Max. Marks: 25]

**Instructions:**

**1. Fill up strictly the following details on your answer book**

- a. Name of the Examination :**BACHELOR OF SCIENCE (NEP) (FIRST YEAR) (SECOND SEMESTER)**
  - b. Name of the Subject :**ELECTRONICS PAPER – I (THEORY)– LEVEL 3 (SEMICONDUCTOR DEVICES AND LOGIC CIRCUITS)**
  - c. Subject Code No :**2403000502039001**
2. Sketch neat and labelled diagram wherever necessary.
  3. Figures to the right indicate full marks of the question.
  4. All questions are compulsory.

Seat No:

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Student's Signature

**Q.1 One word or short answer (Any 5)**

**5**

- 1) What is extrinsic semiconductor?
- 2) In how many ways a transistor can be connected in a circuit?
- 3) Why FET is called a unipolar device?
- 4) What is K-map and what for it is used?
- 5) What is sequential circuit?
- 6) What is a latch?

**Q.2 Answer (any 2)**

**10**

- 1) How is charge depletion region formed in P-N Junction? Draw the energy band diagram of a P-N Junction.
- 2) Discuss the construction and working of FET.
- 3) Explain Zener and avalanche Breakdown.

**Q.3 Answer (any 2)**

**10**

- 1) What is combinational logic circuit? Explain full adder circuit in detail.
- 2) Draw and explain 4 bit binary ripple counter.
- 3) What is K-Maps? Explain its application in circuit design.

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