



B.Tech in Artificial Intelligence/Data Science Department
University Teaching Department, CSVTU, Bilai
Subject – Foundation of Electronics Engineering
Class Test 1-January 2022

Time: 1:30 hrs.

Max. Marks: 40

Attempt all questions from each section.

Section A: Multiple Choice Questions:

(1×10)

- I. For n-type semiconductor, the doping material is
 - (a) Tetravalent
 - (b) Pentavalent
 - (c) Trivalent
 - (d) Bivalent
- II. When a free electron is recaptured by a hole, the process is called
 - (a) Recombination
 - (b) Diffusion
 - (c) Drift
 - (d) Restoration
- III. The FET is essentially a
 - (a) Voltage controlled device
 - (b) Current controlled device
 - (c) Power driven source
 - (d) Solar device
- IV. The cut off frequency of a bipolar junction transistor increases with
 - (a) Increase in base width
 - (b) Decrease in collector width
 - (c) Decrease in base width
 - (d) Increase in temperature
- V. β gain of a transistor signifies
 - (a) Rectification capacity of transistor
 - (b) Amplification capacity of transistor
 - (c) Regulation capacity
 - (d) All options are correct
- VI. The input resistance of the MOSFET is of the order of
 - (a) 100Ω
 - (b) $1 \text{ m} \Omega$
 - (c) $10 \text{ k} \Omega$
 - (d) $100 \text{ M} \Omega$
- VII. Relationship between α , β & γ
 - (a) $\alpha \beta = \gamma$
 - (b) $\alpha \gamma = \beta$
 - (c) $\beta \gamma = \alpha$

(d) All option are correct

VIII. For Active region operation of NPN transistor

- (a) Emitter is positive with respect to base
- (b) Emitter is negative with respect to base
- (c) Emitter is at same voltage as base
- (d) Base is at same voltage as collector

IX. In a pure semiconductor electric current is due to

- (a) Holes only
- (b) Electrons only
- (c) Holes and electrons both
- (d) Valence electrons alone

X. MOSFET is a

- (a) Bipolar
- (b) Unipolar
- (c) Either bipolar or unipolar
- (d) None of the above

Section B: Descriptive Type Questions:

(6×5)

1. Explain common emitter npn transistor with their output characteristics.
2. Explain PN junction diode with its characteristics .
3. Explain n-channel JFET with its transfer characteristics
4. Differentiate between Depletion type MOSFET and Enhancement type MOSFET.
5. How a depletion region is formed in a BJT ? Explain in brief.

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