MIS NO: 6 1 2 3 0 3 0 4 3

COEP Technological University, Pune
First Year B. Tech
TEST – I
Basic Electrical and Electronics Engineering

Day & Date: Monday, 21/03/2022
Time: 8:30 am to 9:30 am

Max. Marks: 20
Duration: 1 hour.

Instructions:

- Assume suitable data wherever necessary.
- Draw neat diagrams wherever required.
- Figures to the right indicate the full marks.

For objective type questions,

- Choose only one correct option. If you think there are more than one correct option, then choose what you consider the best option.
- If you select more than one option, or you scratch one option and write another, your response will be considered wrong.

		Marks	CO	PO
Q.1	Choose the correct option from the given options for the following objective questions.		4	1,2
1)	Forbidden energy gap for Si and Ge at 300^0 K respectively are a] 1.1 eV and 0.7 eV b] 0.07 eV and 1.5 eV c] 1.5 eV and 0.07 eV d] 0.7 eV and 1.1 eV	[1]		
2)	In an N-type semiconductor there are a] No minority carriers b] Immobile negative ions c] Immobile positive ions d] Holes as majority carriers	[1]		
3)	The impurity items with which pure silicon may be doped to make it a P-type semiconductor are those of a] Phosphorous b] Boron c] Antimony d] Nitrogen	[1]		
4)	In semiconductors, which of the following gives the law of mass action (the symbols have their usual meaning) a] $n_i = n = p$ b] $n_i^2 = np$ c] $n \gg p$ d]] $p \gg n$	[1]		
5)	Given a diode current of $8\ mA$ and $\eta = 1$, find I_S if the applied voltage is 0.5 V and $V_T = 25\ mV$. a] 16.48 pA b] 16.48 nA c] 16.48 mA d] 16.48 μA	[1]		