ADAMAS UNIVERSITY PURSUE EXCELLENCE	**ADAMAS UNIVERSITY** **END (EVEN)SEMESTER EXAMINATION : MAY 2021** (Academic Session: 2020 – 21)		
Name of the Program:	B. Tech. (ECE)	**Semester:**	VIII
Paper Title :	Semiconductor Device Modelling	**Paper Code:**	EEC61110
Maximum Marks :	**40**	**Time duration:**	3 Hours
Total No of questions:	**08**	**Total No of Pages:**	01

Answer all the Groups

Group A

(Answer all the questions)

$\mathbf{5 \times 1 = 5}$

1)

a) What are the main applications of diode lasers? [CO1]
b) Define FEM and name software package based on such principle. [CO3]
c) Give an example of commercial device modelling software. [CO4]
d) What is gain medium? [CO3]
e) Name the models used for diode circuit analysis. [CO5]

Group B

(Answer any three of the following)

$\mathbf{3 \times 5 = 15}$

2) What are the differences between 2-level systems and semiconductors? [CO3]
3) Explain with a flow chart the process of electrical to optical power conversion. [CO5]
4) Explain the CVD model for diodes. [CO5]
5) Write short note on DH laser diodes. [CO2]

Group C

(Answer any two of the following)

$\mathbf{2 \times 10 = 20}$

6) Explain in details the working process contrast for small vs. large signal concept of diode modelling. [CO5]
7) Describe the SPICE design model for large signal diode operation. [CO5]
8) Explain the solution of Poisson's equation using numerical methods with relevant diagrams and mathematical expressions. [CO4]