Total No. of Questions : 8] [Total No . of Printed Pages : 2

Roll No . .....

MEVD- 302 (A)

M . Tech. (Third Semester)

EXAMINATION, Feb./ March, 2009

OPTO -ELECTRONICS, INTEGRATED CIRCUITS

[MEVD – 302 (A)]
Time:Three Hours
Maximum Marks :100
Minimum Pass Marks : 40

Note : Attempt and five questions . All questions carry equal marks.

1. (a) Explain what do you understand by two –dimensional wave guide.
   (b)What are the mode cut –off conditions in an optical wave guide ?

2. (a) Explain the fabrication of an optical wave guide by vacuum deposition technique.
   (b) Discuss epitaxial growth of III – V compound semiconductor materials.

3 (a) Characterise the radiation and bending losses in an optical wave guide.
   (b)How are the wave guide losses measured ?

4 (a) Explain the working principle of prism couplers . Also discuss its applications.
   (b)How is the coupling between optical wave guides achieved ?

5. Explain the working of wave guide modulators . Also elaborate about acoustic optic effect in modulators.

6. (a) Explain the working of laser and obtain the expression of optical gain for laser reaching lasing threshold.
   (b) With the help of equivalent circuit derive the expression of photodetector noise current.

7 Discuss about state of the art technology in guided wave devices and its application.

8. Write short notes on any two of following
   (a) Grating couplers
   (b) Transcendental equation in wave guide
   (c) DFB laser