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

 Roll No .....

MEVD-301(A)

M.E./M.Tech. III Semester

Examination, June 2017

Opto-Electronics Integrated Circuits

(Elective - IV)

Time : Three Hours

Maximum Marks : 70

Note: i) All questions carry equal marks.
ii) Attempt any five questions out of eight questions.
iii) Assume suitable data, if necessary.

1. a) Explain the fabrication process for waveguides. Write all the steps and explain with help of a suitable diagram.
   b) Write down the differences between the vacuum deposition and solution deposition during waveguide fabrication technique.

2. a) Discuss about the Wave guide theory. Explain the one dimensional planar waveguides.
   b) Derive and explain the transcendental equation for two dimensional waveguide.

3. a) Draw and explain the procedure of coupling between optical waveguides.
   b) "Modulators and Switches play a vital role in waveguides". State reasons to support your answer.

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4. a) Write a detailed note on epitaxial growth of III - V compound semiconductor materials.
   b) Explain the principle of ion exchange and ion implanted waveguides.

5. a) Discuss about the acousto - optic and magneto - optic effects.
   b) Write an introductory note on Distributed feedback lasers. Write its applications.

6. a) Derive the mode cutoff equation for circular guide.
   b) Discuss the various consequences for the wave equations in optoelectronics.

7. a) Explain the fundamentals of optical coupling. Give a brief classification of couplers use in optical coupling.
   b) Write down the applications of directional couplers.

8. Write short notes (any four)
   a) Laser Diodes
   b) Optical Lasers
   c) Grating Couplers
   d) Waveguide Profiling
   e) Electro optic effects
   f) Dry etching techniques

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