

Code: ECMC1T2

I M.Tech - I Semester - Regular Examinations – April 2015

**FIBER OPTIC COMPONENTS, MEASUREMENTS &
NETWORKS
(MICROWAVE & COMMUNICATION ENGINEERING)**

Duration: 3 hours

Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1. a) With the help of neat schematic explain light emission from edge emitting LED and derive the expression for internal quantum efficiency. 7 M
- b) Explain the concept of modulation of laser diodes with neat sketches. 7 M
2. a) List and explain the factors on which the response time of a photo detector depends. 7 M
- b) Explain the physical principles of photo diodes. 7 M
3. a) Explain in detail about the fiber alignment and joint losses in OFC. 7 M
- b) With neat diagrams explain different fiber splices. 7 M

4. a) Explain in detail about semiconductor optical amplifier with neat sketches and derive the expression for cavity gain. 7 M
- b) Derive an approximate expression for the cavity gain of an SLA(TWA-type) in the limiting case of a 3dB peak – trough ratio. 7 M
5. a) Explain in detail about Beam splitters, and direction Couplers. 7 M
- b) What is optical computation? Explain about the requirements to provide a practical optical computing system. 7 M
6. a) Explain in detail about phase and polarization based sensors. 7 M
- b) Explain the principles of displacement and velocity measurements using optical Fibers. 7 M
7. a) Write about optical switches and isolators. 7 M
- b) Explain the concept of Optical fiber Networks. 7 M

8. a) Explain the generic configuration of large SONET network.

7 M

b) Explain about optical CDMA in detail.

7 M