

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – II • EXAMINATION – WINTER 2012****Subject code: 1722701****Date: 29/12/2012****Subject Name: Optical Networks****Time: 100.30 am – 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Compare circuit switching and packet switching for optical communication system. Explain an optical packet switching node with diagram. **07**
- (b) What are the advantages and disadvantages of single mode fiber over multimode fiber? **07**
- Q.2** (a) What is polarization mode dispersion? Also explain polarization dependent effects. **07**
- (b) Draw and explain a Circulator. **07**
- OR**
- (b) Write a short note on Erbium Doped Fiber Amplifier (EDFA). **07**
- Q.3** (a) Explain the basic frame structure of STS-1 and STS-N of SONET frames. **07**
- (b) Give benefits of SONET/SDH over PDH. **07**
- OR**
- Q.3** (a) Write short note on Ethernet. **07**
- (b) Draw and explain the architecture of a Storage Area Network. **07**
- Q.4** (a) Give comparison of different OXC configurations. **07**
- (b) Draw and explain the block diagram of a typical optical line amplifier. **07**
- OR**
- Q.4** (a) Explain the concept of self-healing rings with example. **07**
- (b) Give advantages and disadvantages of mesh protection schemes in the optical layer of the network. **07**
- Q.5** (a) What are different optical switch technologies? Explain any one in detail. **07**
- (b) Explain the basic principle of photo detection using a semiconductor. **07**
- OR**
- Q.5** (a) Why designing networks is harder than designing point-to-point links? **07**
- (b) Compare intra channel and inter channel crosstalk in optical communication. Also explain crosstalk reduction techniques. **07**
