

GUJARAT TECHNOLOGICAL UNIVERSITY**M.E –IIst SEMESTER–EXAMINATION – JULY- 2012****Subject code: 1722701****Date: 06/07/2012****Subject Name: Optical Networks****Time: 10:30 am – 13:00 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) What is the difference between first generation and second generation optical networks? Draw and explain a wavelength routing network. **07**
- (b) What are the conditions to get total internal reflection of light ray in optical fiber? Explain the concept of propagation of light rays in optical fiber by total internal reflection. **07**
- Q.2** (a) What are different components of chromatic dispersion? Explain. **07**
- (b) Draw and explain a directional coupler. **07**
- OR**
- (b) Write a short note on Erbium Doped Fiber Amplifier (EDFA). **07**
- Q.3** (a) Give benefits of SONET/SDH over PDH. **07**
- (b) What are different elements of a SONET infrastructure? Explain with necessary network diagram. **07**
- OR**
- Q.3** (a) Explain GFP frame structure in detail. **07**
- (b) Draw and explain architecture of a Storage Area Network. **07**
- Q.4** (a) Classify different protection schemes in optical networks with explanations. **07**
- (b) Give benefits and limitations of optical layer protection technique. **07**
- OR**
- Q.4** (a) Write a short note on chirped fiber bragg grating for chromatic dispersion compensation. **07**
- (b) Why designing networks is harder than designing point-to-point links? **07**
- Q.5** (a) Briefly explain different OADM architectures. **07**
- (b) What are the important parameters used to characterize the suitability of a switch for optical networking applications? **07**
- OR**
- Q.5** (a) Write key functions of an Optical Crossconnect (OXC) in a large optical network. **07**
- (b) Write a short note on PIN photodiode. **07**
