

GUJARAT TECHNOLOGICAL UNIVERSITY**ME – SEMESTER –I-(New) EXAMINATION – SUMMER 2019****Subject Code: 3710509****Date: 10/05/2019****Subject Name: Optical Networks****Time: 02:30 PM TO 05:00 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) 1. Compare: Circuit Switching and packet switching **07**
 2. Enlist various multiplexing techniques. Explain the advantages of WDM.
- (b) State the WDM network design issues. Explain any one in detail. **07**
- Q.2** (a) Compare UPSR, BLSR/2 and BLSR/4 with respect to network survivability. **07**
 (b) Explain protection in Ethernet. **07**
- OR**
- (b) Explain serial OADM architecture. Justify – Wavelength planning is must in serial OADM architecture. **07**
- Q.3** (a) State the protection in SONET/SDH. **07**
 (b) 1. Explain in brief: wavelength reuse and transparency. **07**
 2. Why do we need optical add/drop multiplexers. Explain along with example.
- OR**
- Q.3** (a) 1. Write short note on WDM. **07**
 2. Explain IP routing and forwarding of SONET/SDH.
- (b) Explain optical layer protection schemes. **07**
- Q.4** (a) 1. Explain key features of WDM system. **07**
 2. Explain the concept of wavelength dimensioning.
- (b) Draw and explain block diagram of WDM wavelength routing network. **07**
- OR**
- Q.4** (a) Write note on optical cross connect? What do you mean by all optical cross connect? Explain various types. **07**
 (b) 1. Explain the SONET network with figures. **07**
 2. Explain with figures, benefit of protection at optical layer over protection at IP layer.
- Q.5** (a) 1. Explain two cases of statistical model **07**
 2. Explain the various techniques for protection in the client layer.
- (b) What do we mean by network survivability? What are the various types of protection techniques used in optical network. **07**
- OR**
- Q.5** (a) 1. Explain with calculation SONET frame & bit rate. **07**
 2. Discuss RWA problem in WDM network design.
- (b) Discuss WDM network design issue of LTD with respect to different topologies. **07**
