Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
ME – SEMESTER – I (New)– EXAMINATION – WINTER-2019

Subject Code: 3710509   **Date: 09-01-2020**
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. Explain key features of WDM system. 2. Explain the concept of wavelength dimensioning.	**07**
	(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)	Draw and explain block diagram of WDM wavelength routing network.	**07**
		OR	
	(b)	Explain serial OADM architecture. Justify – Wavelength planning is must in serial OADM architecture.	**07**
Q.3	**(a)**	Explain optical layer protection schemes.	**07**
	(b)	1. Explain in brief: wavelength reuse and transparency. 2. Why do we need optical add/drop multiplexers. Explain along with example.	**07**
		OR	
Q.3	**(a)**	1. Write short note on WDM. 2. Explain IP routing and forwarding of SONET/SDH.	**07**
	(b)	State the protection in SONET/SDH.	**07**
Q.4	**(a)**	1. Compare: Circuit Switching and packet switching 2. Enlist various multiplexing techniques. Explain the advantages of WDM.	**07**
	(b)	Explain protection in Ethernet.	**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 two cases of statistical model 2. Explain the various techniques for protection in the client layer.	**07**
Q.5	**(a)**	1. Explain the SONET network with figures. 2. Explain with figures, benefit of protection at optical layer over protection at IP layer.	**07**
	(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. 2. Discuss RWA problem in WDM network design.	**07**
	(b)	Discuss WDM network design issue of LTD with respect to different topologies.	**07**

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