USN										

DAYANANDA SAGAR COLLEGE OF ENGINEERING

(An Autonomous Institute Affiliated to VTU, Belagavi)

ShavigeMalleshwara Hills, Kumaraswamy Layout, Bengaluru-560078

Department of Telecommunication Engineering

Internal Assessment Test – CIE-3

Course: **Optical Communication and Networks**

Course Code**: 17TE7GCOCN** Maximum marks: **50**

Semester: VII SEM A &B Duration: **90 Min**

	Note: Maximum of 4 sub questions are allowed.	**Marks**
1	a. In the _____ topology, the data generally circulates bi-directionally. (i) Mesh (ii) Ring (iii) Star (iv) Bus b. For used in single-mode fiber, _____ are used preferably (i) Semiconductor optical amplifier (ii) Erbium-doped fiber amplifier (iii) Raman fiber amplifier (iv) Brillouin fiber amplifier. c. MEMS Technologies are also finding applications in (i) Light wave systems (ii) optical filters (iii) both i) and ii) (iv) none of the above. d. In _____ the microwave frequency are modulated with an optical carrier and transmitted using a single wavelength channel. (i) Subcarrier multiplexing (ii) TDM (iii) FDM (iv) Code division multiplexing. e. MEMS acronym is and it finds applications in i) MIMO electromechanical systems, Optical isolators ii) Mini electrical mechanical systems iii) Micro electrostatic systems iv) Micro electromechanical systems, light wave systems f. The length of Erbium doped fiber amplifier consists of i) 10 to 30m length ii) 50m iii) 100m iv) 300m g. _____ reconstitutes a transmitted digital optical signal. i) Repeaters ii) Optical amplifiers iii) Modulators iv) Circulators h. Mach-Zehnder Interferometer Multiplexers are made up of i) wavelength independent, Active ii) Passive iii) wavelength dependent multiplexers, either active or Passive iv) none of the above i. Optical Isolators are designed in the form of i) Polarization dependent isolator ii)Polarization independent isolator iii) Nonreciprocal device iv)both ii) and iii) j. Phased array devices function as a …… i)Multiplexer, drop and insert element ii) wavelength Router iii) Both i) and ii) iv) None of the above	1x10
2	Describe briefly Phased array based devices with its diagram of top view of a typical arrayed waveguides grating and its functions.	
3	Develop the physical layer aspects of SONET/SDH, explaining the basic structure of	

	STS-1 SONET frame format, STS-N SONET frame format with transmission formats.	
4	Classify the two architectures of SONET/SDH networks and explain unidirectional path switched ring with diagrams.	
	(OR)	
5	Describe with diagrams of a Generic configuration of a large SONET/SDH network consisting of various types of interconnected rings.	10
6	Discuss briefly optical isolators, optical circulators and operation of a Polarization of independent Isolator made of 3 miniature optical components.	10
	(OR)	
7	Discuss the layout of a basic 2 x2 Mach-Zehnder Interferometer and its equations.	10

Staff Incharge: Mr JC NO OF COPIES: 90

****