PVP 19

Code:19EC4602A

III B.Tech - II Semester – Regular Examinations – JUNE 2022

FIBER OPTIC COMMUNICATIONS
(ELECTRONICS AND COMMUNICATION ENGINEERING)

Duration: 3 hours Max. Marks: 70

Note: 1. This question paper contains two Parts A and B.
2. Part-A contains 5 short answer questions. Each Question carries 2 Marks.
3. Part-B contains 5 essay questions with an internal choice from each unit. Each question carries 12 marks.
4. All parts of Question paper must be answered in one place.

PART – A

1. a) What is the need of fiber optic communication?
   b) Compare Surface Emitting LED and Edge Emitting LED's.
   c) Discuss steps in splicing.
   d) Analyze Thermal and Shot Noise in Fiber Optics.
   e) Explain the Applications of Fiber Optics.

PART – B

UNIT – I

2. a) Explain advantages of optical fiber communications. 6 M
   b) Discuss reflection and refraction mechanism. 6 M

OR

3. a) Explain the Step index fiber. 6 M
   b) What is the meaning of mode of a fiber? Write short notes on Multimode step index fiber. 6 M

UNIT – II

4.	a)	List advantages and disadvantages of laser diode.	6 M
	b)	Illustrate the operation of Surface emitting LED.	6 M
		OR	
5.	a)	Discuss Principles of Optical Detectors.	6 M
	b)	Illustrate the operation of PIN Photodiode.	6 M

UNIT-III

6.	a)	Classify the different types of splices and explain each.	6 M
	b)	Describe the operation of Fiber Optical Isolator.	6 M
		OR	
7.	a)	Discuss different types of connectors.	6 M
	b)	Sketch and analyze about star coupler.	6 M

UNIT – IV

8.	a)	Sketch and Analyze Laser-Diode Modulation Circuit.	6 M
	b)	With neat block diagram, analyze the function of Optical Heterodyne Receivers.	6 M
		OR	
9.	a)	Classify various noises that present in Optical Link.	6 M
	b)	Compare Analog and Digital Modulation Formats.	6 M

UNIT – V

10.	a)	Illustrate the Operation of a Digital Optical Receiver in detail.	6 M
	b)	Analyze Rise Time Budget.	6 M

OR

11.	a)	Examine the function of Analog Optical System Design.	6 M
	b)	Apply Link Power Budget with an example.	6 M