

**Reg. No:**

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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)

**B.Tech IV Year I Semester Supplementary Examinations November-2020**

**OPTICAL FIBER COMMUNICATION**

(Electronics & Communication Engineering)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

**UNIT-I**

- 1 a What is MFD of single mode fiber? Explain with suitable structure 7M  
b List out the merits and demerits of optical communication? 5M

**OR**

- 2 a Compare step index & graded index fiber? 6M  
b Illustrate about the propagation modes in single mode fibers? 6M

**UNIT-II**

- 3 a List and explain losses in Optical Fiber Communication System 6M  
b What are the Mechanisms which causes Absorption? 6M

**OR**

- 4 a Derive the total dispersion in single mode fiber? 6M  
b What are the main causes of Intra Modal Dispersion? 6M

**UNIT-III**

- 5 a Explain the factors involved in launching optical power from a light source to fiber 6M  
b What is a pig-tailed device 6M

**OR**

- 6 a Differentiate between dispersion limited and an attenuation limited fiber optic links. 4M  
b Discuss about the point to point fiber optical link. 8M

**UNIT-IV**

- 7 a Explain in detail the operation of Avalanche Photo Diode with its structure 8M  
b What are the conditions to be met to achieve a high S/N ratio 4M

**OR**

- 8 a Explain the digital signal transmission for an optical receiver? 6M  
b How the noise sources are generated in optical receiver? 6M

**UNIT-V**

- 9 a With a neat block diagram explain multi channel amplitude modulation? 6M  
b Write short notes on error control in digital link? 6M

**OR**

- 10 a List the advantages & disadvantages of using WDM in optical fiber communication system. 6M  
b Write short notes on fiber grating fibers? 6M

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