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Roll No.	Total No. of Pages:02
Total No. of Questions:18	
B.Tech. (Electrical & Electron (Electronics & Elect OPTICAL FIBER C Subject Code : M.Code :	ics) (2013 & Onwards E-III)/ rical) (Sem.–7) OMMUNICATION BTEEE-805C 71971
Time : 3 Hrs.	Max. Marks:60
INSTRUCTION TO CANDIDATES :	
1 SECTION-A is COMPUL SORY consisting	ng of TEN questions carrying TWO marks

- 1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- 2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
- 3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Answer briefly :

- 1. Why do we prefer optical fibre communication for long distance communication?
- 2. What is the use of splicing?
- 3. Which dispersion mechanism (material or waveguide) is a function of the size of the fibre's core relative to the wavelength of operation?
- 4. Differentiate absorption and emission rate.
- 5. What are the two analyses usually carried out to ensure the desired performance of optical fiber transmission link?
- 6. In a 50ns pulse 6×10^6 photons at a wavelength of 1200nm fall on an InGaAs photodetector. On average 4.2×10^6 EHPs are generated. Calculate the quantum efficiency of photodetector.
- 7. Draw the layer diagram of a pin photodiode.
- 8. Differentiate conventional and dispersion shifted fibers.
- 9. What are the benefits of optical multiplexing?
- 10. What is light wave system?

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SECTION-B

- 11. Explain the different modulation format applicable to optical communication system.
- 12. Discuss single mode and multimode fiber with suitable diagram.
- 13. Draw the structure of the LED. Calculate efficiency of a LED drawing 80 mA of current when 1.5 V is applied to its terminals and produces 1.5mW of optical power.
- 14. Explain the construction and working of coupled cavity semiconductor laser.
- 15. Define the term modal noise and briefly explain the impact of modal noise on fibre communication.

SECTION-C

- 16. Define Snell law. Discuss the total internal reflection. Draw a diagram indicating how the light propagation is effected by numerical aperture.
- .igo With the help of suitable diagram explain the working of VCSEL. 17.
- 18. Write a short notes on :
 - a. Fibre losses.
 - b. Source fiber coupling.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.