

Code No: **R41041**

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IV B.Tech I Semester Supplementary Examinations, October/November - 2017 OPTICAL COMMUNICATIONS (Electronics and Communications Engineering) Time: 3 hours Max. Marks: 75 **Answer any FIVE Questions** All Questions carry equal marks ***** 1 (i) Draw the block diagram of OFC and explain each block. a) (ii) Mention any six advantages of OFC. [10] Discuss the total internal reflection in OFC using Snell's law. b) [5] Discuss different fiber material characteristics in detail. 2 a) [10] Explain the micro & macro bending. b) [5] 3 Write short note on the following a) Chromatic dispersion b) Polarization mode dispersion c) Material dispersion [15] 4 a) Discuss different splicing techniques in detail. [7] Write about fiber alignment & joint losses. [8] b) 5 Write about (a) Laser diode to fiber coupling (b) Equilibrium numerical aperture. [15] 6 Compare different photo detectors. [6] a) A PIN diode is characterized by a quantum efficiency of 72% at a b) wavelength of 900 nm. Calculate: (i) Responsivity of the PIN diode at 900 nm. (ii) Received optical power if the mean photo current is 10 mA at 900 nm. (iii) Number of received photons for 1 mA mean photo generated current. [9] 7 a) Explain the link power budget with example. [10] Compare the overall fiber dispersion in multimode and single mode fibers. [5] b) Discuss in detail about the principle of WDM network with suitable 8 a) diagram. [9]

b) How the attenuation is measured using eye pattern? [7]

1 of 1