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Seat No.	

T.E. (Electronics and Telecommunication) (Part - III) (Semester - VI)

Examination, April - 2016

OPTICAL COMMUNICATION & NETWORK (Revised) (New)

Sub. Code : 66919

Day and Date : Saturday, 23 - 04 - 2016 **Total Marks : 100**

Time : 03.00 p.m. to 06.00 p.m.

Instructions :
1) **All questions are compulsory.**
2) **Figures to the right indicate full marks.**
3) **Assume suitable data if necessary.**

SECTION - I

Q1) Attempt any two of the following. **[16]**

a) Explain optical fiber communication system and state basic network information rates.

b) Describe internal quantum and external quantum efficiency. Derive necessary expressions.

c) Differentiate between single mode and graded mode optical fiber.

Q2) Attempt any two of the following. **[16]**

a) Explain attenuation, absorption in optical fiber.

b) What is signal distortion? What are the condition to achieve distortion less system.

c) A multimode step index fiber with a core radius of 25 μm and relative refractive index difference of 0.01 is operating at 0.84. μm wavelength. If refractive index of core is 1.48, determine Normalized frequency and number of modes.

P.T.O.

Q3) Write a notes on any three of the following. **[18]**

a) Advantages of optical communication system.

b) Bending losses.

c) Optical Laws and definition.

d) Dobule crucible method.

SECTION - II

Q4) Attempt any two of the following. **[16]**

a) Explain structure of dome LED with neat diagram.

b) Explain concept of population inversion and write a note on laser diodes.

c) Explain laser rate equations.

Q5) Attempt any two of the following. **[16]**

a) Explain the structure of InGaAs APD.

b) Write a short note on Reflection grating, Transmission grating, arrayed waveguide grating.

c) Explain in detail transmission formats and speeds in SONET.

Q6) Write a notes on any three of the following. **[18]**

a) Thermal noise

b) PIN photodiode

c) Star coupler

d) Bragg grating

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