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Name.....

Reg. No.....

**SEVENTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, DECEMBER 2007**

EC 04 703—OPTICAL COMMUNICATION SYSTEMS

Time : Three Hours

Maximum : 100 Marks

- I. (a) List the attenuation mechanisms in optical fibers.
(b) Compare the total number of modes guided in a step index fiber with a graded index fiber.
(c) Write the principle of operation of pn detector.
(d) Draw the structure of LED and explain.
(e) Compare the BER for PSK and FSK modulation formats.
(f) Write the concept of homodyne systems.
(g) Write the intermodulation effects in optical amplifiers.
(h) Discuss the wavelength range of operation in optical amplifier.

(8 × 5 = 40 marks)

- II. (a) What is meant by self-phase modulation ? Explain its effect in single mode fibres.

(15 marks)

Or

- (b) (i) Discuss the principle of polarization maintaining fiber. (7 marks)
(ii) Write the concept of dispersion limit in optical fibers. (8 marks)

- III. (a) Write the principle of operation of LASER. Discuss the different types of LASERS.

(15 marks)

Or

- (b) Explain the different types of noises in the detection process. (15 marks)

- IV. (a) Discuss the performance degradation induced by laser phase and intensity noise.

(15 marks)

Or

- (b) Explain the degradation induced by nonlinear effects in fiber propagation.

(15 marks)

- V. (a) Explain EDFA architecture.

(15 marks)

Or

- (b) Explain the principle of operation of Raman amplifier.

(15 marks)