

C 1107

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**SIXTH SEMESTER B.TECH. (ENGINEERING) [09 SCHEME] DEGREE
EXAMINATION, APRIL 2016**

EC/PTEC 09 605—OPTICAL COMMUNICATION

Time : Three Hours

Maximum : 70 Marks

Part A

Answer all questions.

1. Mention the concept of V number.
2. Define polarization mode dispersion.
3. State the difference between LED and LASER diode.
4. What is receiver sensitivity ?
5. What is gain clamping in semiconductor amplifier ?

(5 × 2 = 10 marks)

Part B

Answer any four questions.

6. Write short notes on dispersion shifted and dispersion flattened fibers.
7. Discuss the concept of polarization maintaining fibers.
8. Derive the power and efficiency of LED.
9. Explain the structure of avalanche photodiode.
10. Discuss the concept of equalization employed in reducing ISI.
11. Write short notes on SONET.

(4 × 5 = 20 marks)

Part C

Answer all questions.

12. (a) Discuss the dispersion in single mode and multimode fibers that causes signal distortion.

Or

(b) Discuss the attenuation mechanisms in fibers in detail.

13. (a) (i) Explain the structure of LASER diode. (6 marks)
(ii) Discuss the concept of modulation scheme used in LASER diode. (4 marks)

Or

Turn over

(b) (i) Explain the principle of operation of p-i-n photodiode. (5 marks)

(ii) Discuss the concept of responsivity and quantum efficiency. (5 marks)

14. (a) Explain the operation of intensity modulated direct detection optical receivers.

Or

(b) Discuss the principles of homodyne and heterodyne detection in coherent system.

15. (a) Explain the principle of wavelength division multiplexing optical system.

Or

(b) (i) Explain the operation of rare earth doped fiber amplifier for erbium doped fibers.

(5 marks)

(ii) Write short notes on Raman amplifier.

(5 marks)

[4 × 10 = 40 marks]