

**R09**

Code: 9A10804

B.Tech IV Year II Semester (R09) Advanced Supplementary Examinations, July 2013

**OPTO-ELECTRONICS & LASER INSTRUMENTATION**

(Electronics and Instrumentation Engineering)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions

All questions carry equal marks

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- 1 (a) Explain the constructional details of optical fibre communication and show a figure for transmission of light and discuss about refractive index distribution with a graph.  
(b) Explain single mode fibre with neat diagram and graph.
- 2 (a) Discuss about various applications of optical fiber index.  
(b) Explain different types of light sources in fiber optics.
- 3 (a) Explain principle and operation of CO<sub>2</sub> laser.  
(b) Explain different types of Q switching techniques.
- 4 (a) Write in detail about IR detectors.  
(b) Describe the working of Moiré-Fringe modulation fibre optic sensor.
- 5 Explain with neat diagram how lasers are used for:  
(a) Weather monitoring.  
(b) Endoscopy.
- 6 (a) With help of neat sketch explain holographic computer memory.  
(b) Explain term coherent requirement resolution in connection with hologram.
- 7 (a) Explain the process of tumors removal in vocal cords.  
(b) Explain how lasers can be used in skin treatment.
- 8 (a) Obtain expression for bandwidth of Bragg acoustic optical modulator.  
(b) Describe different mechanism that limit frequency response of photo diode.

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