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Anna University Exams Nov/Dec 2015 – Regulation 2008  
Rejinpaul.com Unique Important Questions – 7th Semester BE/BTECH  
EI2404-FIBER OPTICS AND LASER INSTRUMENTS

**UNIT I**

1. Explain in detail about different types of fibres and their properties.
2. Explain about fibre characteristics. Define Numerical aperture and derive an expression for it and explain the factors it depends.
3. Explain about various types of fibre optic losses in detail.
4. Explain different types of connectors and splicers?
5. What is ISI in optical fibres? Derive an expression for rms pulse broadening in single mode fibre due to intramodal dispersion.
6. Explain about optical sources and optical detectors.

**UNIT II**

1. Explain about liquid level sensors & pressure sensors in detail.
2. Explain about the different types of interferometer.
3. Explain the concept of polarization in optical fibers and discuss the polarization sensors.
4. Write in detail about fiber grating sensor.
5. Write about the acoustic sensors & temperature sensor in detail.

**UNIT III**

1. Explain the operation of Nd: YAG laser.
2. Write notes on a) mode-locking b) Q-Switching c) Cavity damping
3. Describe the construction and working of any one of the gas lasers with neat diagrams
4. Describe the construction and working of the semi conductor lasers with neat diagram
5. Describe the construction and working of the Helium Neon lasers with neat diagram

**UNIT IV**

1. With a neat block diagram, explain the operation of LIDAR.
2. Explain the interferometric methods used for measurement of distance.
3. Explain the beam modulation telemetry and pulse echo techniques for measurement of distance.
4. Explain the industrial applications of laser in material processing.
5. Explain the method for the measurement of acceleration and current.

**UNIT V**

1. Explain Holography in detail.
2. Explain in detail the medical applications of laser.
3. Write Notes on a) Plastic surgery. b) oncology
4. Describe tissue interaction in detail.
5. Write note on a) gynecology b) brain surgery c) removal of tumors of vocal cards.

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