Reg. No. : | | | | | | | | | | |

Question Paper Code: 39506

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

Elective

Electronics and Instrumentation Engineering

01UEI906 - LASER AND FIBRE OPTICS INSTRUMENTATION

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Give any four desirable properties of lasers.
2. What is Q switching?
3. What are industrial lasers?
4. What are the advantages of laser welding?
5. Write any two applications of holographic interferometry.
6. What is an optical fiber?
7. Define Numerical Aperture (NA).
8. Differentiate a step index fibre form a graded index fibre.
9. What is a fiber optic gyroscope?
10. What is the use of fibre optic gyroscope and on what effect it works?

PART - B (5 x 16 = 80 Marks)

11. (a) How is a three level laser different from a four level laser? With suitable energy level diagram, describe the construction and working of a four level laser. (16)

Or

(b) Explain the construction and operation of semi-conductor LASER. (16)

12. (a) Write notes on LASER heating and welding. (16)

Or

(b) How the LASER can be used for measuring length, velocity, distance and acceleration. (16)

13. (a) Describe any four applications of LASER in surgery. (16)

Or

(b) Explain holographic interferometry. Illustrate any two applications of it with relevant diagrams. (16)

14. (a) Explain the propagation of light through fiber. Also give the different types of fibers and their properties. (16)

Or

(b) Explain the construction and working of PIN diode and avalanche photo diode. List out their advantages, disadvantage and applications. (16)

15. (a) Explain any three industrial applications of fibers. (16)

Or

(b) Explain the measurement of pressure, temperature and change in orientation using optical fibres. (16)

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