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Question Paper Code: 39506

B.E. / B.Tech. DEGREE EXAMINATION, NOV 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. Enlist the properties of laser.
2. Mention the applications of Q switching.
3. Identify the applications of laser in industry?
4. What are the advantages of laser welding?
5. Write any two applications of holographic interferometry.
6. What is an optical fiber?
7. What is an optical fiber?
8. What are the various losses in an optical fiber?
9. What is a fiber optic gyroscope?
10. In what ways the optical fibers are used in instrumentation?

PART - B (5 x 16 = 80 Marks)

11. (a) Write technical notes on (i) mode-locking (ii) Q-Switching. (16)

Or

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

12. (a) Explain in detail how laser is used to measure the following industrial parameters:
(i) current (ii) voltage (iii) pollution. (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) Describe any four applications of LASER in surgery. (16)

14. (a) Discuss about various types of fibre optic losses in detail. (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) With a neat diagram explain the working of fiber optic Instrumentation system. (16)

Or

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