

Roll No.

Total Pages : 2

BT-1/D-19

31014

APPLIED PHYSICS

Paper-AS-101N

Opt. (II)

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *five* questions in all, selecting at least *one* question from each Unit.

UNIT-I

1. (a) Explain the construction and working of Michelson interferometer. 8
- (b) Explain the condition for absent spectra and overlapping of spectral lines in a plane transmission grating. 7
2. (a) Explain phenomenon of interference by division of wavefront. Give suitable example. 8
- (b) Derive the expression for dispersive power of a plane transmission grating. 7

UNIT-II

3. (a) Describe the working of Laurents half shade polarimeter. 7
- (b) Discuss briefly the characteristics of laser beam. 8

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4. (a) Discuss the Einstein's coefficients. Derive relation between them. 7
- (b) Explain the principle and working of semiconductor laser. 8

UNIT-III

5. (a) Describe the step index and graded index optical fibers. 8
- (b) Discuss various applications of ultrasonics. 7
6. (a) Discuss the piezoelectric method of production of ultrasonic waves. http://www.kuonline.in 8
- (b) Discuss in detail various applications of optical fiber. 7

UNIT-IV

7. (a) State the postulates of special theory of relativity. Apply Lorentz transformation to derive expression for length contraction. 8
- (b) Describe the construction and working of Geiger Muller counters. 7
8. (a) Deduce an expression for variation of mass with velocity. 8
- (b) Describe the construction and working of scintillation counter. 7

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