

(041120202)

M.Sc. DEGREE EXAMINATION, APRIL 2018

SECOND SEMESTER

Branch — Physics

Paper II — ELECTROMAGNETIC THEORY, LASERS AND MODERN OPTICS

(Old Syllabus for Batch 2013 to 2016)

Time : 3 Hours

Max. Marks : 70

PART - A

Answer any FOUR questions. Each question carries 5 marks.

(Marks : 4×5 marks = 20 marks)

1. Write Maxwell equation in different form.
2. Define skin depth, what will happen when high frequency microwaves propagated through conducting media.
3. What is phenomenon of laser?
4. Write brief note on population inversion.
5. Give application of holography.
6. Explain convolution integral.
7. Explain Total Internal Reflection with neat diagram.
8. What are the applications of optical fibers?

PART - B

Answer ONE question from each Unit. Each question carries 12.5 marks.

(Marks : 4×12.5 marks = 50 marks)

UNIT - I

9. Explain the propagation of light in conducting media.

Or

10. What are the retarded potentials and explain radiation of moving point charge and oscillation dipole?

UNIT - II

11. Construction and working of He-Ne laser.

Or

12. Explain frequency up conversion and cell focusing light.

[P.T.O]

UNIT - III

13. Explain recording and reconstruction of Hologram.

Or

14. (a) Discuss Fraunhofer diffraction double slit using Fourier method.

(b) Explain Parsevels formula.

UNIT - IV

15. Draw block diagram of optical fiber system and explain each block.

Or

16. Explain the structure of graded index fiber with diagram.
