Roll No. .....

Total Pages : 2

BT-1/D-12

8002

PHYSICS–I

Paper–PHY-101E

Time Allowed : 3 Hours] [Maximum Marks : 100

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

UNIT–I

1. (a) Explain, how interference fringes may be obtained with the help of Fresnel's biprism. How will you measure the wavelength of monochromatic light using Fresnel's biprism ? 15

   (b) What are the conditions for interference of light ? 5

2. (a) Describe the construction and theory of plane transmission diffraction grating. 10

   (b) Explain the construction and working of Laurent's half-shade polarimeter. 10

UNIT–II

3. (a) Give description of semiconductor Laser. 10

   (b) Explain in brief monochromaticity, intensity, directionality and coherence in reference to Laser. 10

4. (a) Write a note on optical fibre. 10

   (b) Describe the single mode and multi-mode optical fibre. 10

UNIT–III

5. (a) State and prove Gauss's law in electrostatics. Use this law to find the expression for electric field strength due to an infinite line of charge. 15

(b) Write a note on co-axial cable. 5

6. (a) Deduce an expression for energy stored in an electric field. 10

(b) Describe the behaviour of dielectrics in a.c. field. 10

UNIT–IV

7. What was the objective of conducting the Michelson-Morley experiment ? Describe the experiment. How is the negative result of the experiment interpreted ? 20

8. (a) Describe the construction and working of nuclear reactor. 10

(b) Discuss the construction and working of Scintillation detector for detection of nuclear radiations. 10