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Department of Food Technology
Examination: Odd Semester Examination -2019

B. Tech.
1st Sem
2019

Paper Name: Applied Physics

Paper Code: BFTC-103

Time: 3 Hours

Maximum Marks: 75

Note: 1. Mobile phones or programmable calculator or any equipment with memory are not allowed inside the examination hall. Follow proper numbering for answering the questions.
2. It is compulsory to answer all the questions of Section A.
3. Answer any four questions in Section B.

Section –A

(7x5=35)

1. In a Young's double slit experiment the separation between the slits is 0.10 mm, the wavelength of light used is 500 nm and the interference pattern is observed on a screen 95 cm away. Calculate the fringe width.
2. How do you differentiate between an ordinary source of light and a LASER?
3. What is interference of light? How many types of interference are there?
4. Discuss in brief the important features of simple harmonic motion (SHM).
5. Explain Malus law in polarization of light.
6. What are the Einstein coefficients? Explain their importance.
7. Briefly explain the important applications of lasers.

Section- B

(10x4=40)

8. Describe in detail Young's double slit experiment (YDSE). Why is this experiment so important in physics?
9. Explain these terms associated with lasers (a) spontaneous emission (b) stimulated emission (c) population inversion (d) metastable state (e) life time.
10. What is an optical fiber? Discuss the important features of multi mode and graded index optical fibers.
11. What are the various steps in laser action? Describe the construction and working of any laser that you are familiar with.
12. What do you understand by a frame of reference? A rocket 15 meter in length measured by an observer at rest with respect to it moves with a speed of $0.90c$ with respect to an observer on the ground. What the length of the rocket is as measured by the observer on the ground?
13. Mention the important applications of the optical fibers. Explain the propagation of light in an optical fibre?

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