

**I B. Tech I Semester Supplementary Examinations, May - 2017****APPLIED PHYSICS**

(Agricultural Engineering)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)  
 2. Answering the question in **Part-A** is Compulsory  
 3. Answer any **FOUR** Questions from **Part-B**
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**PART -A**

1. a) Explain the concept of coherence. (2M)
- b) What are the differences between interference and diffraction? (2M)
- c) What are the special characteristics of Lasers/ light? (2M)
- d) Mention the methods of production of Ultrasonics. (2M)
- e) Write the differences between Nuclear fusion and Nuclear fission. (2M)
- f) Write any two applications of ferromagnetic materials. (2M)
- g) Explain the statement: lattice + basis = crystal structure. (2M)

**PART -B**

2. a) Explain the construction and working principle of Michelson's interferometer. (12M)
- b) What type of fringes will be formed if white light is used in a Michelson's interferometer? (2M)
3. a) Explain following the terms (10M)  
 i) Diffraction Grating ii) Telescope
- b) Explain the Fraunhofer diffraction due to single slit. (4M)
4. a) Explain the construction and working of He-Ne laser with neat energy level diagram. (10M)
- b) Write notes on half wave plate. (4M)
5. a) What is NDT? Explain any two different scan displays in common use. (10M)
- b) Explain the Sabine's formula. (4M)
6. a) Illustrate Bravais Lattices. (10M)
- b) Describe the construction of nuclear reactor. (4M)
7. a) Explain in detail the classification of magnetic materials on the basis of field and temperature. (10M)
- b) Derive Clausius-Mosotti equation. (4M)

