Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec - 2017**

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| **Code :** | **16PH1001** | **Duration :** | **3hrs** |
| **Sub. Name :** | **APPLIED PHYSICS FOR ENGINEERS** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. | a. | Discuss in detail the process of recording and reconstruction of a hologram with suitable diagrams. | CO1 | 16 |
| b. | Define population inversion. | CO1 | 4 |
| (OR) | | | | |
| 2. | a. | How are optical fiber cables classified according to materials used for manufacture, modes of transmission of light and refractive index profile? Explain with diagrams wherever necessary. | CO1 | 16 |
| b. | The refractive indices for core and cladding for a step index fiber are 1.452 and 1.321 respectively. Calculate i. Critical angle ii. NA  iii. acceptance angle | CO1 | 4 |
| 3. | a. | Discuss the factors affecting the acoustics of an auditorium? Give the remedies for the same. | CO2 | 16 |
|  | b. | Calculate the reverberation time of Immanuel Auditorium whose volume is (100\*40\*20) and the total absorption coefficient is 7333.33 O.W.U. | CO2 | 4 |
| (OR) | | | | |
| 4. | a. | Describe in detail about inverse piezoelectric effect and the method of producing ultrasonic waves using this method. | CO2 | 16 |
|  | b. | Describe magnetostriction effect. | CO2 | 4 |
| 5. | a. | With a neat diagram, explain the principle, construction and working of a Scanning Electron Microscope. | CO3 | 16 |
|  | b. | State the properties of matter waves. | CO3 | 4 |
| (OR) | | | | |
| 6. | a. | How did Davisson and Germer prove the concept of matter waves? With neat diagrams, discuss their experiment. | CO3 | 16 |
|  | b. | What are quantum dots? | CO3 | 4 |
| 7. | a. | Compare the properties of dia, para and ferro magnetic materials with a neat tabular column. | CO4 | 16 |
|  | b. | Define hysteresis curve. | CO4 | 4 |
| (OR) | | | | |
| 8. | a. | Distinguish Type I and Type II superconductors? Explain in detail with how these materials respond to applied magnetic field. | CO4 | 16 |
|  | b. | Describe Meissner Effect. | CO4 | 4 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Explain the three stage nuclear power programme of India in detail. | CO5 | 16 |
|  | b. | List out the parts of a nuclear reactor? | CO5 | 4 |

ALL THE BEST