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



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **19PH1007** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ENGINEERING PHYSICS – PROPERTIES OF MATTER, OPTICS AND QUANTUM MECHANICS** | **Max. Marks :** | **100** |

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| **Q. No.** | **Questions** | **Course Outcome** | **Marks** |
| **PART – A (10 X 1 = 10 MARKS)** | | | |
| 1. | State Hooke’s law. | CO1 | 1 |
| 2. | Define young’s Modulus. | CO1 | 1 |
| 3. | The deBroglie wavelength =\_\_\_\_\_\_\_\_\_\_\_\_\_. | CO2 | 1 |
| 4. | Give example for matter waves. | CO2 | 1 |
| 5. | Light waves are longitudinal wave. Say true / false. | CO3 | 1 |
| 6. | What is a SHW? | CO3 | 1 |
| 7. | \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the fundamental building block of crystal structure. | CO4 | 1 |
| 8. | The coordination number for a simple cube is\_\_\_\_\_\_\_\_\_. | CO4 | 1 |
| 9. | Define thermal conductivity. | CO5 | 1 |
| 10. | The transfer of energy by the emission of electromagnetic radiation is\_\_\_\_\_\_\_\_. | CO5 | 1 |

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| **PART - B (6 X 3 = 18 MARKS)** | | | |
| 11. | List out the factors affecting elastic modulus. | CO1 | 3 |
| 12. | Sketch and label scanning electron microscope. | CO2 | 3 |
| 13. | Explain the various condition of damping oscillation. | CO3 | 3 |
| 14. | Infer point defect and line defect. | CO4 | 3 |
| 15. | Explain the importance of solar water heaters. | CO5 | 3 |
| 16. | Define numerical aperture and acceptance angle. | CO6 | 3 |

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| **PART – C (6 X 12 = 72 MARKS)**  **(Answer any five Questions from Q.No. 17 to 23. Q.No. 24 is a Compulsory Question)** | | | | |
| 17. |  | Illustrate the bending of beam and obtain an expression for the internal bending moment. | CO1 | 12 |
| 18. |  | Explain the experiment of Davisson and Germer to demonstrate the wave nature of the electrons with suitable diagrams. | CO2 | 12 |
| 19. |  | Derive an expression for the equation of motion and time period for a Linear harmonic oscillator and simple pendulum. | CO3 | 12 |
| 20. |  | Classify and explain the various types of waves. Discuss in detail about the reflection and transmission of waves at a boundary. | CO3 | 12 |
| 21. |  | What is Miller indices and inter planar distances? Compute the coordination number and packing factor for FCC. | CO4 | 12 |
| 22. |  | Discuss the Lee’s disc method to find the thermal conductivity. | CO5 | 12 |
| 23. |  | Elaborate the conduction of heat through compound media. | CO5 | 12 |
|  |  | **Compulsory:** | | |
| 24. |  | What is the principle of optical fiber? Discuss in detail the various types of optical fibers with suitable diagrams. | CO6 | 12 |