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| **University of Kerala** | | |
| Discipline: Physics |  | Time: 1 Hour 30 Minutes (90 Mins.) |
| Course Code: UK1MDCPHY104 |  | Total Marks: 42 |
| Course Title: **Physics of Everyday Appliances** |  |  |
| Type of Course: MDC |  |  |
| Semester: 1 |  |  |
| Academic Level: 100-199 |  |  |
| Total Credit: 3, Theory: 3 Credit  (Applicable for 4 Credit Course with 1 Credit Practical Also) |  |  |

Part A. 6 Marks. Time: 6 Minutes. (Cognitive Level: Remember/Understand) Objective Type. 1 Mark Each. Answer All Questions

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| **Qn.**  **No.** | **Question** | **Cognitive Level** | **Course Outcome (CO)** |
| 1. | Name one type of discharge lamp that produces a white light. | Remember | 1 |
| 2. | Define f number. | Remember | 2 |
| 3. | Write the relation between frequency and period of a harmonic oscillator | Remember | 1 |
| 4. | Discuss one method to improve the quality of a camera lens | Understand | 2 |
| 5. | Define heat | Understand | 3 |
| 6. | Define the term thermal conductivity | Understand | 3 |

Part B. 8 Marks. Time: 24 Minutes. (Cognitive Level: Understand/Apply) Short Answer. 2 Marks Each. Answer All Questions

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| **Qn.**  **No.** | **Question** | **Cognitive**  **Level** | **Course Outcome (CO)** |
| 7. | Explain the principle behind LASER? | Understand | 1 |
| 8. | How do eyeglasses help to correct vision problems? | Understand | 2 |
| 9. | To extract work from the fuel, which are the tasks that a heat engine can perform? | Understand | 3 |
| 10. | Explain the difference between transverse wave and longitudinal wave | Understand | 1 |

Part C. 28 Marks. Time: 60 Minutes. (Cognitive Level: Apply/Analyse/Evaluate/Create)

Long Answer. 7 marks each. Answer all 4 Questions, choosing among options\* within each question.

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| **Qn.**  **No.** | **Question** | **Cognitive**  **Level** | **Course Outcome (CO)** |
| 11. | 1. i. Explain the working principle of Light Emitting Diodes (LEDs) 2. The advantages of using LEDs over traditional lighting solutions   OR   1. i. Explain the working of fluorescent lamp   ii. Write the advantages of fluorescent lamps over incandescent lamp | Understand | 1 |
| 12. | A. Explain the working of an air conditioner  OR  B. Differentiate conduction, convection and radiation with examples | Understand | 3 |
| 13. | A. i. Explain the working of different image sensors.  OR  B. Describe how human eye forms image on retina | Understand | 2 |
| 14. | A. i. Describe BLDC motors  ii. Discuss the practical applications of BLDC motors  OR   1. i. Explain Simple harmonic motion.   ii. Define Amplitude, period, frequency, and the phenomena of resonance in SHM | Understand | 1 |