**18PHI04**

**Hall Ticket Number:**

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| **IV/IV B.Tech (Regular) DEGREE EXAMINATION** | | | |
| **May,2022** | **Common to CE/CSE/ECE/EEE/IT** | | |
| **Eighth Semester** | **Optoelecronic Devices And Applications** | | |
| **Time:** Three Hours | | **Maximum :** 50 Marks | |
| *Answer Question No.1 compulsorily.* | | | (1X10 = 10 Marks) |
| *Answer ONE question from each unit.* | | | (4X10=40 Marks) |

**1.** Answer all questions (1X10=10 Marks)

|  |  |
| --- | --- |
| a. What happens when photon interact with matter CO1 |  |
| b. What is quantum well laser CO1 |  |
| c. What is cathode luminescence CO2 |  |
| d. Mention the type of emission in laser CO1 |  |
| e.What are the applications of thermal detectors. CO3 |  |
| f. What is plasma display CO2 |  |
| g .How the IR detectors are useful for TV operation CO3 |  |
| h Write the principle of interferometric modulator CO4 |  |
| i What is the drawback of direct modulation CO4 |  |
| j. What are noises in photoconductors. CO3 |  |
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**UNIT – I**

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| 2.a | Explain the lasing action in semiconducting diodes. CO1 | 8M |
| 2.b | What are heterojunction lasers CO1 | 2M |

**(OR)**

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| 3.a | Describe various mode locking systems CO1 | 8M |
| 3.b | What is Q switching CO1 | 2M |

**UNIT – II**

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| 4.a | Explain the construction and operation of LED CO2 | 8M |
| 4.b | Write the significance of liquid crystal display CO2 | 2M |

**(OR)**

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| 5.a | Describe various solar cells and their efficiencies CO2 | 10M |
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**UNIT – III**

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| 6.a | Explain the functioning and frequency response of PIN diode CO3 | | 10M |
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**(OR)**

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| 7.a | Explain the construction and working of charge coupled device (CCD). CO3 | 8M |
| 7.b | Mention the advantage of APD detector CO3 | 2M |

**UNIT – IV**

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| 8.a | Discuss different types of modulations CO4 | 10M |

**(OR)**

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| 9.a | Explain the electro optical modulators. CO4 | 6M |
| 9.b | Write the significance of semiconductor optical amplifier CO4 | 4M |

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