



I B.Tech II Sem Regular/Supply End Examination, September-2022

Applied Physics
 (EEE, CSE, CSI, CSM, IT)
Time: 3 Hours.**Max. Marks: 70**

Note: 1. Question paper consists: Part-A and Part-B.

2. In Part – A, answer all questions which carries 20 marks.

3. In Part – B, answer any one question from each unit.

Each question carries 10 marks and may have a, b as sub questions.

PART- A**(10*2 Marks = 20 Marks)**

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|-------|---|----|-----|-----|
| 1. a) | State the Photoelectric effect. | 2M | CO1 | BL1 |
| b) | Discuss about Davisson and Germer experiment. | 2M | CO1 | BL1 |
| c) | Define drift current. | 2M | CO2 | BL1 |
| d) | Draw Fermi level position in P-type semiconductor. | 2M | CO2 | BL2 |
| e) | What are the applications of PIN diode? | 2M | CO3 | BL1 |
| f) | Write the significance of Semiconductor photo detector. | 2M | CO3 | BL2 |
| g) | List out few applications of laser. | 2M | CO4 | BL1 |
| h) | What are the applications of optical fibers? | 2M | CO4 | BL1 |
| i) | Define dielectric constant. | 2M | CO5 | BL1 |
| j) | Illustrate magnetic susceptibility. | 2M | CO5 | BL2 |

PART- B**(10*5 Marks = 50 Marks)**

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|------|--|----|-----|-----|
| 2 a) | Derive an equation for Schrodinger's time independent wave equation. | 5M | CO1 | BL5 |
| b) | Describe Heisenberg's Uncertainty principle. | 5M | CO1 | BL6 |

OR

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|------|--|-----|-----|-----|
| 3 | Derive an expression for Particle in one dimensional box. | 10M | CO1 | BL6 |
| 4 a) | Explain V-I Characteristics of Zener diode. | 5M | CO2 | BL2 |
| b) | Describe Fermi level position with respect to carrier concentration and temperature. | 5M | CO2 | BL6 |

OR

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|---|--|-----|-----|-----|
| 5 | What is Hall effect? Derive an expression for Hall coefficients. | 10M | CO2 | BL6 |
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- 6 a) Explain construction and characteristics of LED. 5M C03 BL5
b) Write a note on Solar cell. 5M C03 BL1
- OR**
- 7 Discuss structure, working principle and Characteristics of Avalanche photodiode. 10M C03 BL4
- 8 a) Illustrate Losses associated with optical fibers. 5M C04 BL2
b) Derive an expression for Acceptance angle and Numerical aperture 5M C04 BL6
- OR**
- 9 With neat diagram describe construction and principle of He-Ne laser. 10M C04 BL6
- 10 a) Write a note on magnetic Hysteresis. 5M C05 BL1
b) Distinguish between Ferroelectrics and Piezoelectrics. 5M C05 BL4
- OR**
- 11 Discuss Classification of magnetic materials. 10M C05 BL6

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CO: Course Outcomes

BL: Blooms Taxonomy Levels