

Final: 10.12.2021

Course Code: 2010006

Roll No:

MLRS- R20



**MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT**

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

I B.Tech I Sem Supply End Examination, December 2021

APPLIED PHYSICS

(ECE, CSC & CSD)

Time: 3 Hours.

Max. Marks: 70

Note: 1. Answer any FIVE questions.

2. Each question carries 7 marks.

- | | | | | | |
|---|----|--|----|------|-----|
| 1 | a) | Explain de-Broglie's hypothesis. Calculate wavelength of an electron when it is propagating under "V" voltage. | 7M | CO-1 | L-5 |
| | b) | What are the fundamental laws of photoelectric effect? | 7M | CO-1 | L-1 |
| 2 | a) | With a neat diagram discuss Davisson and Germer experiment. | 7M | CO-1 | L-6 |
| | b) | Write a note on (i) Work function (ii) Threshold frequency (iii) Stopping potential. | 7M | CO-1 | L-1 |
| 3 | a) | What is Hall effect? Derive an equation for Hall coefficient. | 7M | CO-2 | L-6 |
| | b) | Explain formation of PN junction diode. | 7M | CO-2 | L-2 |
| 4 | a) | What is Solar cell? Explain its working principle and Characteristics. | 7M | CO-3 | L-5 |
| | b) | Discuss construction and working principle of PIN photodiode. | 7M | CO-3 | L-6 |
| 5 | a) | What is Fermi level? Illustrate variation of Fermi level with effect of carrier concentration and temperature. | 7M | CO-2 | L-2 |
| | b) | Distinguish between LED and Solar cell. | 7M | CO-3 | L-4 |
| 6 | a) | With a neat diagram discuss construction and working principle of Ruby laser. | 7M | CO-4 | L-6 |
| | b) | Write a note on losses associated with optical fibers. | 7M | CO-4 | L-1 |
| 7 | a) | Describe construction and working principle of He-Ne laser system. | 7M | CO-4 | L-6 |
| | b) | Discuss Domain theory of ferromagnetism. | 7M | CO-5 | L-6 |
| 8 | a) | Derive an expression for Internal fields in a solid. | 7M | CO-5 | L-6 |
| | b) | What is Ferroelectrics? Explain the properties of ferroelectric materials. | 7M | CO-2 | L-5 |

