



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

III B.Tech I Sem Regular End Examination, February 2022

HIGH VOLTAGE ENGINEERING**(EEE)****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) | What is ionization? | 2M | C01 | BL1 |
| b) | What is intrinsic breakdown of solid dielectrics? | 2M | C01 | BL1 |
| c) | What is a Tesla coil? | 2M | C02 | BL1 |
| d) | Define front and tail time of an impulse wave. | 2M | C02 | BL1 |
| e) | What is a potential divider circuit? | 2M | C03 | BL1 |
| f) | What is loss factor? | 2M | C03 | BL1 |
| g) | What is stepped leader? | 2M | C04 | BL1 |
| h) | What is surge impedance of a transmission line? | 2M | C04 | BL1 |
| i) | What is fifty percent flashover voltage? | 2M | C05 | BL1 |
| j) | What is power frequency test? | 2M | C05 | BL1 |

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

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|------|---|----|-----|-----|
| 2 a) | State and explain Townsend's mechanism in breakdown of gases | 5M | C01 | BL4 |
| b) | Explain different insulating medium used in different electrical equipment. | 5M | C01 | BL4 |

OR

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|---|---|-----|-----|-----|
| 3 | Explain different theories of breakdown in commercial liquid dielectrics. | 10M | C01 | BL4 |
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|------|--|----|-----|-----|
| 4 a) | What is the principle of operation of cascaded transformer? | 5M | C02 | BL1 |
| b) | Why is controlled tripping is necessary for impulse generator? | 5M | C02 | BL1 |

OR

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|---|---|-----|-----|-----|
| 5 | Explain various methods of generation of high d.c voltages. | 10M | C02 | BL4 |
|---|---|-----|-----|-----|

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|-----------|----|---|-----|-----|-----|
| 6 | a) | Explain how a sphere gap can be used to measure the peak value of voltages. | 5M | C03 | BL4 |
| | b) | Explain any one method of measuring high impulse currents. | 5M | C03 | BL4 |
| OR | | | | | |
| 7 | | Explain the measuring of high d.c voltages by (i) generating voltmeter and (ii) potential divider | 10M | C03 | BL4 |
| 8 | a) | What are the causes for switching over voltages in power systems? | 5M | C04 | BL1 |
| | b) | What is surge arrester? Explain its function. | 5M | C04 | BL4 |
| OR | | | | | |
| 9 | | Explain different theories of charge formation in clouds. | 10M | C04 | BL4 |
| 10 | a) | Mention the various electrical tests to be done on H.V circuit breakers. | 5M | C05 | BL1 |
| | b) | Explain the various IS, IEC standards used for HV testing. | 5M | C05 | BL1 |
| OR | | | | | |
| 11 | | Explain the method of impulse testing of high voltage transformers. | 10M | C05 | BL4 |

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