

Code No: I5612/R16

M. Tech. I Semester Regular/Supple Examinations, Jan/Feb -2018

GENERATION & MEASUREMENT OF HIGH VOLTAGES

**Common to Power Systems(56),PSC &A(53),EPS(65),PSE(30),PS & C(31),
ADV PS(50),EPE(60),High Voltage Engineering (62), PS WITH Emphasis ON H.V. Engg
(29) and High Voltage Power Systems Engineering(64)**

Time: 3 Hours

Max. Marks: 60

*Answer any FIVE Questions
All Questions Carry Equal Marks*

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| 1. | a | Give the concept of electric field and discuss about uniform and non-uniform electric field. | 6 |
| | b | What are the advantages and limitations of finite element method? | 6 |
| 2. | a | Explain with diagrams, different types of rectifier circuits for producing high D.C.Voltages. | 8 |
| | b | Discuss ripple in voltage doubler circuits. | 4 |
| 3. | | Explain with a neat diagram, the principle of operation of i) series ii) parallel resonant circuits for generating high A.C. voltages, Compare their performance. | 12 |
| 4. | a | Explain clearly the basic principle of operation of electrostatic generator. | 6 |
| | b | Discuss the advantages and limitations of Van de Graff generators. | 6 |
| 5. | a | Draw a schematic diagram of a Marx circuit for impulse voltage generation and explain its operation. | 6 |
| | b | Define the terms i) Impulse Voltage ii) Chopped Wave iii) Impulse flashover voltage | 6 |
| 6. | a | Compare the relative advantages and disadvantages of a series resistance micro ammeter and a potential divider with an electrostatic voltmeter for measuring high D.C. voltages? | 6 |
| | b | A Generating voltmeter is to read 250kV with an indicating meter having a range of (0-20) μ A calibrated accordingly. calculate the capacitance of the generating voltmeter when the driving motor rotates at a constant speed of 1500 r.p.m. | 6 |
| 7. | a | Write a short note on i) Uniform field spark gaps. ii) Rod gaps iii) Sphere gaps | 6 |
| | b | Compare the use of uniform field electrode spark gap and sphere gap for measuring peak values of voltages. | 6 |
| 8. | | Write a short notes on
i) Faraday generator
ii) Magnetic link
iii) Hall Generator | 12 |

