Code No: RR410209 **RR** **Set No. 2**

IV B.Tech I Semester Examinations,November 2010
HIGH VOLTAGE ENGINEERING
Electrical And Electronics Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Explain how the breakdown of gases occur in non-uniform fields.
   (b) What is Arc discharge? Explain. [9+7]
2. Discuss various methods of measuring high d.c and a.c. currents. [16]
3. (a) How are damped high frequency oscillations obtained from a Tesla coil?
   (b) Explain clearly cascaded voltage multiplier circuits for high voltage generation. [8+8]
4. (a) Write a short note on the use of an Oscilloscope as a Partial Discharge measuring device.
   (b) A Schering bridge was used to measure the capacitance and loss angle of a h. v. bushing. At balance, the observations were: the value of the standard condenser = 100 pF, R_3=3180 Ω, C_3=0.00125 μF and R_4 = 636 Ω. What are the values of capacitance and tan δ of the bushing? [6+10]
5. (a) What do you understand by "intrinsic strength" of a solid dielectric? How does breakdown occur due to electrons in a solid dielectric?
   (b) What are the special features of epoxy resin insulation? [8+8]
6. (a) Give the Marx circuit arrangement for multi stage impulse generators.
   (b) An impulse current generator is rated for 50kW sec. The parameters of the circuit are C = 51 μF and L = 2 μH. Find the time to front, time to tail of the current wave form. [8+8]
7. What is Ragowskii Coil? Explain with a neat diagram, its principle of operation for measurement of high impulse currents. [16]
8. (a) Discuss about various aspects of collision Cross Section.
   (b) Derive the relationship between mean free path, gas pressure and temperature. [8+8]

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Code No: RR410209 **RR** **Set No. 4**

IV B.Tech I Semester Examinations,November 2010
HIGH VOLTAGE ENGINEERING
Electrical And Electronics Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Write a short note on the use of an Oscilloscope as a Partial Discharge measuring device.
   (b) A Schering bridge was used to measure the capacitance and loss angle of a h. v. bushing. At balance, the observations were: the value of the standard condenser = 100 pF, R_3=3180 Ω, C_3=0.00125 μF and R_4 = 636 Ω. What are the values of capacitance and tan δ of the bushing? [6+10]
2. (a) What do you understand by "intrinsic strength" of a solid dielectric? How does breakdown occur due to electrons in a solid dielectric?
   (b) What are the special features of epoxy resin insulation? [8+8]
3. (a) Explain how the breakdown of gases occur in non-uniform fields.
   (b) What is Arc discharge? Explain. [9+7]
4. (a) Discuss about various aspects of collision Cross Section.
   (b) Derive the relationship between mean free path, gas pressure and temperature. [8+8]
5. (a) How are damped high frequency oscillations obtained from a Tesla coil?
   (b) Explain clearly cascaded voltage multiplier circuits for high voltage generation. [8+8]
6. Discuss various methods of measuring high d.c and a.c. currents. [16]
7. What is Ragowskii Coil? Explain with a neat diagram, its principle of operation for measurement of high impulse currents. [16]
8. (a) Give the Marx circuit arrangement for multi stage impulse generators.
   (b) An impulse current generator is rated for 50kW sec. The parameters of the circuit are C = 51 μF and L = 2 μH. Find the time to front, time to tail of the current wave form. [8+8]

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Code No: RR410209 **RR** **Set No. 1**

IV B.Tech I Semester Examinations,November 2010
HIGH VOLTAGE ENGINEERING
Electrical And Electronics Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. What is Ragowskii Coil? Explain with a neat diagram, its principle of operation for measurement of high impulse currents. [16]
2. (a) How are damped high frequency oscillations obtained from a Tesla coil?
   (b) Explain clearly cascaded voltage multiplier circuits for high voltage generation. [8+8]
3. Discuss various methods of measuring high d.c and a.c. currents. [16]
4. (a) Discuss about various aspects of collision Cross Section.
   (b) Derive the relationship between mean free path, gas pressure and temperature. [8+8]
5. (a) Write a short note on the use of an Oscilloscope as a Partial Discharge measuring device.
   (b) A Schering bridge was used to measure the capacitance and loss angle of a h. v. bushing. At balance, the observations were: the value of the standard condenser = 100 pF, R_3=3180 Ω, C_3=0.00125 μF and R_4 = 636 Ω. What are the values of capacitance and tan δ of the bushing? [6+10]
6. (a) Explain how the breakdown of gases occur in non-uniform fields.
   (b) What is Arc discharge? Explain. [9+7]
7. (a) Give the Marx circuit arrangement for multi stage impulse generators.
   (b) An impulse current generator is rated for 50kW sec. The parameters of the circuit are C = 51 μF and L = 2 μH. Find the time to front, time to tail of the current wave form. [8+8]
8. (a) What do you understand by "intrinsic strength" of a solid dielectric? How does breakdown occur due to electrons in a solid dielectric?
   (b) What are the special features of epoxy resin insulation? [8+8]

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Code No: RR410209 **RR** **Set No. 3**

IV B.Tech I Semester Examinations,November 2010
HIGH VOLTAGE ENGINEERING
Electrical And Electronics Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Write a short note on the use of an Oscilloscope as a Partial Discharge measuring device.
   (b) A Schering bridge was used to measure the capacitance and loss angle of a h. v. bushing. At balance, the observations were: the value of the standard condenser = 100 pF, R_3=3180 Ω, C_3=0.00125 μF and R_4 = 636 Ω. What are the values of capacitance and tan δ of the bushing? [6+10]
2. What is Ragowskii Coil? Explain with a neat diagram, its principle of operation for measurement of high impulse currents. [16]
3. (a) Explain how the breakdown of gases occur in non-uniform fields.
   (b) What is Arc discharge? Explain. [9+7]
4. (a) What do you understand by "intrinsic strength" of a solid dielectric? How does breakdown occur due to electrons in a solid dielectric?
   (b) What are the special features of epoxy resin insulation? [8+8]
5. (a) Give the Marx circuit arrangement for multi stage impulse generators.
   (b) An impulse current generator is rated for 50kW sec. The parameters of the circuit are C = 51 μF and L = 2 μH. Find the time to front, time to tail of the current wave form. [8+8]
6. Discuss various methods of measuring high d.c and a.c. currents. [16]
7. (a) Discuss about various aspects of collision Cross Section.
   (b) Derive the relationship between mean free path, gas pressure and temperature. [8+8]
8. (a) How are damped high frequency oscillations obtained from a Tesla coil?
   (b) Explain clearly cascaded voltage multiplier circuits for high voltage generation. [8+8]

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