

Code No: R05320206

R05**Set No. 2****III B.Tech II Semester Examinations, December 2010****HIGH VOLTAGE ENGINEERING****Electrical And Electronics Engineering****Time: 3 hours****Max Marks: 80****Answer any FIVE Questions****All Questions carry equal marks**

1. (a) What are partial discharges and how are they detected under power frequency operating conditions?
(b) Discuss the method of balanced detection for locating partial discharges in electrical equipment? [8+8]
2. (a) Explain the properties and applications of Fibre solid dielectric materials used in practice in the high voltage engineering.
(b) Explain about the avalanche breakdown in solid dielectric material. [8+8]
3. Discuss the applications of gases and gaseous mixtures as insulating medium in high voltage switchgear. [16]
4. Mention the different electrical tests done on isolators and circuits breakers. [16]
5. (a) Why are capacitance voltage dividers preferred for high AC voltage measurements?
(b) Explain series impedance voltmeters and series capacitance voltmeters for measurement of AC voltages? [8+8]
6. (a) Draw a typical impulse current generator circuit and explain its operation and applications.
(b) A 12-stage impulse generator has capacitors each rated at 0.3 μF , 150 kV. The capacitance of the test specimen is 400 pF. Find the wave front and wave tail resistances to produce a 1.2/50 μs impulse wave. Also determine the maximum output voltage if the charging voltage is 125 kV. [8+8]
7. Derive the expressions for the voltage and current waves on long transmission lines and obtain the surge impedance of the line? [16]
8. Explain various secondary ionization processes of Townsend's mechanism. Derive an expression for current growth due to these processes. [16]

Code No: R05320206

R05**Set No. 4**

III B.Tech II Semester Examinations, December 2010

HIGH VOLTAGE ENGINEERING

Electrical And Electronics Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Draw a typical impulse current generator circuit and explain its operation and applications.
(b) A 12-stage impulse generator has capacitors each rated at $0.3 \mu\text{F}$, 150 kV . The capacitance of the test specimen is 400 pF . Find the wave front and wave tail resistances to produce a $1.2/50 \mu\text{s}$ impulse wave. Also determine the maximum output voltage if the charging voltage is 125 kV . [8+8]
2. (a) Why are capacitance voltage dividers preferred for high AC voltage measurements?
(b) Explain series impedance voltmeters and series capacitance voltmeters for measurement of AC voltages? [8+8]
3. Derive the expressions for the voltage and current waves on long transmission lines and obtain the surge impedance of the line? [16]
4. Explain various secondary ionization processes of Townsend's mechanism. Derive an expression for current growth due to these processes. [16]
5. Mention the different electrical tests done on isolators and circuit breakers. [16]
6. (a) What are partial discharges and how are they detected under power frequency operating conditions?
(b) Discuss the method of balanced detection for locating partial discharges in electrical equipment? [8+8]
7. Discuss the applications of gases and gaseous mixtures as insulating medium in high voltage switchgear. [16]
8. (a) Explain the properties and applications of Fibre solid dielectric materials used in practice in the high voltage engineering.
(b) Explain about the avalanche breakdown in solid dielectric material. [8+8]

Code No: R05320206

R05**Set No. 1****III B.Tech II Semester Examinations, December 2010****HIGH VOLTAGE ENGINEERING****Electrical And Electronics Engineering****Time: 3 hours****Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. Discuss the applications of gases and gaseous mixtures as insulating medium in high voltage switchgear. [16]
2. (a) Explain the properties and applications of Fibre solid dielectric materials used in practice in the high voltage engineering.
 (b) Explain about the avalanche breakdown in solid dielectric material. [8+8]
3. (a) Why are capacitance voltage dividers preferred for high AC voltage measurements?
 (b) Explain series impedance voltmeters and series capacitance voltmeters for measurement of AC voltages? [8+8]
4. (a) What are partial discharges and how are they detected under power frequency operating conditions?
 (b) Discuss the method of balanced detection for locating partial discharges in electrical equipment? [8+8]
5. Explain various secondary ionization processes of Townsend's mechanism. Derive an expression for current growth due to these processes. [16]
6. Mention the different electrical tests done on isolators and circuits breakers. [16]
7. (a) Draw a typical impulse current generator circuit and explain its operation and applications.
 (b) A 12-stage impulse generator has capacitors each rated at $0.3 \mu\text{F}$, 150 kV. The capacitance of the test specimen is 400 pF. Find the wave front and wave tail resistances to produce a $1.2/50 \mu\text{s}$ impulse wave. Also determine the maximum output voltage if the charging voltage is 125 kV. [8+8]
8. Derive the expressions for the voltage and current waves on long transmission lines and obtain the surge impedance of the line? [16]

Code No: R05320206

R05**Set No. 3**

III B.Tech II Semester Examinations, December 2010

HIGH VOLTAGE ENGINEERING

Electrical And Electronics Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Why are capacitance voltage dividers preferred for high AC voltage measurements?
(b) Explain series impedance voltmeters and series capacitance voltmeters for measurement of AC voltages? [8+8]
2. Discuss the applications of gases and gaseous mixtures as insulating medium in high voltage switchgear. [16]
3. Mention the different electrical tests done on isolators and circuits breakers. [16]
4. Explain various secondary ionization processes of Townsend's mechanism. Derive an expression for current growth due to these processes. [16]
5. (a) Draw a typical impulse current generator circuit and explain its operation and applications.
(b) A 12-stage impulse generator has capacitors each rated at 0.3 μF , 150 kV. The capacitance of the test specimen is 400 pF. Find the wave front and wave tail resistances to produce a 1.2/50 μs impulse wave. Also determine the maximum output voltage if the charging voltage is 125 kV. [8+8]
6. Derive the expressions for the voltage and current waves on long transmission lines and obtain the surge impedance of the line? [16]
7. (a) Explain the properties and applications of Fibre solid dielectric materials used in practice in the high voltage engineering.
(b) Explain about the avalanche breakdown in solid dielectric material. [8+8]
8. (a) What are partial discharges and how are they detected under power frequency operating conditions?
(b) Discuss the method of balanced detection for locating partial discharges in electrical equipment? [8+8]
