Total No. of Questions : 8]

SEAT No. :

P3146

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[5354]-634

B.E. Electrical (End Semester)

HIGH VOLTAGE ENGINEERING

(2012 Pattern) (Elective - III)

Time : 2.30 Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) *Answer all questions..*
2) *Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.*
3) *Neat diagram must be drawn wherever necessary.*
4) *Figures to the right indicate full marks.*
5) *Assume suitable data, if necessary.*
6) *Use of calculator is allowed.*

Q1) a) Explain corona discharge for point plane electrode with positive & negative pulse application. **[7]**

b) Explain conduction & breakdown in pure liquids. **[7]**

c) State & explain Paschen's law with example. **[6]**

OR

Q2) a) Explain cavitation & bubble theory in liquids. **[7]**

b) Explain breakdown due to internal discharges in solid dielectrics. **[7]**

c) Explain various methods to minimize switching surges. **[6]**

Q3) a) Draw neat schematic diagram of three stage cascade transformer with isolating transformer for excitation & explain how High AC voltage is produced? **[8]**

b) Explain generation of high frequency AC voltage with the help of Tesla coil. **[8]**

OR

P.T.O.

Q4) a) Explain triping and control of impulse generator methods with neat diagram: **[8]**

i) Three electrode gap method

ii) Trigatron gap method

b) With neat sketch explain the Marx circuit for generation of impulse voltage. Explain the fuction of each part . **[8]**

Q5) a) Explain principle & working of generating voltmeter. **[8]**

b) Explain Capacitance voltage transformer (CVT). **[8]**

OR

Q6) a) Explain the effect of following factors on sparkover voltage of sphere gap unit. **[8]**

i) nearby earthed object.

ii) atmospheric conditions and humidity.

iii) irradiation and

iv) polarity and rise time of voltage waveform

b) Explain measurement of high power frequency AC using current transformer with electro optical signal converter. **[8]**

Q7) a) Explain various tests conducted on insulator & bushings. **[9]**

b) Give classification of H. V. Laboratories with explanation. **[9]**

OR

Q8) a) Explain single point & bus grounding system used for impulse test labs. **[9]**

b) Explain testing of surge arrestor. **[9]**