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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FIFTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2017

Course Code: EE369

Course Name: HIGH VOLTAGE ENGINEERING (EE)

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks. Marks

1		With neat diagram describe the working of a simple Voltage Doubler circuit for the generation of high DC voltages.	(5)
2		How are damped high frequency oscillations obtained from a Tesla coil?	(5)
3		What are the main components of a Multistage Impulse Generator?	(5)
4		State the different factors affecting the Sphere Gap measurement.	(5)
5		What is meant by Partial Discharge? Define Discharge Extinction Voltage.	(5)
6		Explain the importance of RIV measurements for EHV power apparatus?	(5)
7		Which are the classifications of high voltage laboratories?	(5)
8		Explain the Impulse Testing of transformers.	(5)

PART B

Answer any two full questions, each carries 10 marks.

9		A Cockcroft Walton type voltage multiplier has 8 stages with capacitances all equal to 0.05μF. The supply transformer secondary voltage is 125kV at a frequency of 150Hz. If the load current to be supplied is 5mA, find: (i) The percentage ripple (ii) The regulation (iii) The optimum number of stages for minimum regulation or voltage drop.	(10)
10	a)	What is the basic principle of operation of an Electrostatic machine?	(4)
	b)	Describe with neat diagram the principle of operation, advantages and limitations of Van de Graff generator.	(6)
11	a)	What is a Cascaded Transformer? Why cascading is done?	(5)
	b)	Describe with neat diagram a three stage Cascaded Transformer. Label the power ratings of various stages of the transformer.	(5)

PART C

Answer any two full questions, each carries 10 marks.

12		Give the Marx circuit arrangement for Multistage Impulse Generator. How is the basic arrangement modified to accommodate the wave time control resistances?	(10)
13		Analyse an Impulse Generator circuit of series RLC type.	(10)
14	a)	With diagram explain the principle of operation of Generating Voltmeters.	(6)
	b)	Discuss its advantages and limitations.	(4)

PART D

Answer any two full questions, each carries 10 marks.

15		Explain the operation of high voltage Schering bridge when the test specimen: (i) is grounded (ii) has high loss factor.	(10)
16		Define the following terms used in HV testing as per the standards (i) Disruptive Discharge Voltage (ii) Creepage Distance (ii) Impulse Voltage (iv) 100% Flash Over Voltage	(10)
17		What are the different tests conducted on bushings. Describe.	(10)

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