Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIFTH SEMESTER B.TECH DEGREE EXAMINATION(R&S), DECEMBER 2019

Course Code:EE369

Max. Marks: 100 Duration: 3 Hours

PART A

Course Name: HIGH VOLTAGE ENGINEERING Marks

1		Explain with diagrams, different types of rectifier circuits for producing high voltage dc voltages.	(5)
2		What is the principle of operation of a resonant transformer? How isit advantageous over the cascade connected transformers?	(5)
3		Sketch the impulse waveform and define the front and tail times of an impulse waveform. What are the tolerances allowed as per specifications?	(5)
4		State the different factors affecting the spark over voltage of Sphere Gaps.	(5)
5		Define “complex permittivity”. What are the factors that govern the quantities “relative permittivity” and “loss factor”?	(5)
6		Why earthing and shielding arrangements are needed in Schering bridge measurements?	(5)
7		Elucidate any three high voltage testing standards.	(5)
8		Why grounding is very important in high voltage laboratories?	(5)

PART B

Answer any twofull questions, each carries10 marks.

9	a)	Why is a Cockcroft-Walton circuit preferred for voltage multiplier circuits? Explain its working with a schematic diagram.	(5)
	b)	Sketch the schematic of cascade transformers and label the power ratings of transformers.	(5)
10		Describe the working principle of Van De Graff generator. What are the factors that limit the maximum voltage obtained?	(10)
11		Analyse the circuit for generating high frequency damped oscillations using Tesla coil.	(10)

PART C

Answer any twofull questions, each carries10 marks.

12	a)	(a) A 12-stage impulse generator has 0.126 μF capacitors. The wave front and the wave tail resistances connected are 800 ohms and 5000 ohms respectively. If the load capacitor is 1000 pF, find the front and tail times of the impulse of the impulse wave produced.	(6)
	b)	Explain the Chubb-Fortescue method of measurement of peak a.c. voltages.	(4)
13		Explain the peak voltage measurement using sphere gaps.	(10)
14		Sketch and analyse the basic circuit of an impulse current generator.	(10)

PART D

Answer any twofull questions, each carries 10 marks.

15		Discuss the method of locating partial discharges in electrical equipment using (a)Straight detection method (b) Balanced detection method	(10)
16		What are the different tests done on insulators? Describe.	(10)
17	a)	Explain, with a schematic diagram, one method of measuring Radio Interference Voltage of transmission line.	(5)
	b)	Explain the method of impulse testing of high voltage transformers.	(5)

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