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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIFTH SEMESTER B.TECH DEGREE EXAMINATION(S), MAY 2019

Course Code: EE 369

Max. Marks: 100 Duration: 3 Hours

PART A

Course Name: HIGH VOLTAGE ENGINEERING Marks

1	Explain the generation of high voltage DC voltage using rectifier circuit	(5)
2	How are damped high frequency oscillations obtained from a Tesla Coil?	(5)
3	Explain the working of single stage impulse generator. What are its limitations?	(5)
4	Why capacitance voltage dividers are preferred for high AC voltage measurements?	(5)
5	What is loss factor? Explain its significance.	(5)
6	What are the atmospheric correction factors and mention their influence in HV testing?	(5)
7	Give the classification of type tests for testing of circuit breakers.	(5)
8	Why is grounding essential in a H.V laboratory?	(5)

PART B

Answer any two full questions, each carries10 marks.

9		Derive the expression for voltage regulation in voltage multiplier circuits?	(10)
10	a)	Describe the principle of operation, application and limitations of a Van de Graf generator.	(6)
	b)	Explain the working of a 3 stage cascade transformer with neat diagram.	(4)
11	a)	What is the principle of resonant transformer? Draw the circuit of a series resonant transformer circuit.	(4)

b) An impulse generator has 12 capacitors of 0.12μf and 200kV rating. The wave front and wave tail resistances are 1.25Ω and 4 kΩ respectively. If the load capacitance including that of test object is 10,000pF, find the wave front and wave tail times and the peak voltage of impulse produced. (6)

PART C

Answer any twofull questions, each carries10 marks.

12 a) Explain the method of measurement of very high voltages using sphere gaps. Mention its merits and demerits. (6)

b) Explain the principle of operation of Electrostatic voltmeter? (4)

13 a) Explain the working of impulse current generator with neat diagram (6)

b) Describe the construction and application of a multistage Marx's Generator. (4)

14 a) With a circuit diagram explain the working of generating voltmeters. (6)

b) What are the problems associated with peak voltmeter circuit using passive elements? (4)

PART D

Answer any twofull questions, each carries 10 marks.

15 a) Explain the procedure for impulse testing of power transformer. (5)

b) What are the short circuit tests performed on circuit breakers? Explain each test. (5)

16 a) What are the objectives of high voltage testing? (5)

b) Explain partial discharge measurement with neat circuit. (5)

17 a) Explain the size and dimensions of the equipments in high voltage laboratories. (5)

b) What are the extra precautions that are to be taken while grounding an impulse current generator? (5)

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