Code No: **R41022**

R10

Set No. 1

Max. Marks: 75

IV B.Tech I Semester Supplementary Examinations, February/March - 2018 HIGH VOLTAGE ENGINEERING

(Electrical and Electronics Engineering)

Time: 3 hours

Answer any FIVE Questions All Questions carry equal marks *****

1	a) b)	Discuss Boundary Element Method for solving field problems in high voltage engineering. Compare its merits over other methods. Explain about uniform and non-uniform electric fields. How is electric field	[8]
		intensity/stress controlled?	[7]
2	a)	Derive an expression for the minimum 'pd' value of the Pachen's curve from the first principles.	[8]
	b)	Explain, in detail about, cavitation and bubble theory in commercial liquids.	[7]
3	a) b)	Explain, in detail, electromechanical breakdown in solid insulating materials. Enumerate the applications of solid insulating materials used in different parts	[8]
	of circuit breakers, cable and powe	of circuit breakers, cable and power capacitors.	[7]
4	a)	What is a cascaded Transformer? Explain why cascading is done? Describe with a neat diagram a three stage cascaded Transformer.	[8]
	b)	An 8-stage impulse generator has 0.12 μ F capacitors rated for 167 kV. If it has to produce a 1/50 μ s wave form across load capacitor of 15 μ F. Find the values of wave front and wave tail resistances.	[7]
5	a)	What are different types of resistive shunts used for impulse current measurements? Discuss their characteristics and limitations.	[8]
	D)	limitations in each method?	the [7]
6	a)	Explain how partial discharges in high voltage apparatus can be detected and measured	[7]
	b)	Explain high voltage Schering bridge for measurement of 'tan δ ' and	[/]
		capacitance in power frequency.	[8]
7	a)	Discuss the method of impulse testing of high voltage transformers. What is the procedure adopted for locating failure?	[8]
	b)	What are different power frequency tests done on cables? Mention procedure for testing.	[7]
8		Discuss industrial applications of following with respect to high voltage engineering: (i) Electro static precipitator (ii) Electro Static coating	[15]

1 of 1

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