Exam Seat No:_____

C.U.SHAH UNIVERSITY Winter Examination-2019

Subject Name: High Voltage Engineering Subject Code: 4TE06HVE1 Semester: 6 Date: 12/09/2019

Branch: B.Tech (Electrical) Time: 10:30 To 01:30 Marks: 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.

- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

Q-1		Attempt the following questions:	(14)
	a)	Impulse voltages are characterized by (a) polarity	(1)
		(b) peak value	
		(c) time of half the peak value	
	1)	(d) all of the above	
	D)	A series capacitance voltmeter can measure	(1)
		(a) DC voltage	
		(b) Ac voltage generation	
		(C) Both a and D (d) None	
		(u) Nolle The advantages of resonant transformers is	(1)
	C)	(a) Pure sine wave output	(1)
		(a) I ute sine wave output (b) No high power arcing	
		(c) No repeated flashovers	
		(d) All of above	
	d)	Surge voltage originate in power systems due to	(1)
	u)	(a) lightning	(1)
		(b) switching operations	
		(c) faults	
		(d) Any of the above.	
	e)	Panchen's law is associated with	(1)
		(a) ionization	
		(b) breakdown voltage	
		(c) thermal radiations	
		(d) None of the above	
	f)	A generating voltmeter is used to measure	(1)
		(a) Impulse voltage	
		(b) AC voltage	
		(c) DC voltage	
		(d) All	
	g)	The voltage which produces the loss of dielectric strength of insulation is known	(1)
		as	
			- 6 3



		(a) Withstand voltage	
		(b) Disruptive discharge voltage	
		(c) Flashover voltage	
	h)	(d) Impulse voltage	(1)
	n) ;)	List out different testing methods on transformer	(1)
	1) ;)	Drew voltage develor sirevit	(1)
	J) 1-)	Write properties of liquid di clostricel	(1)
	K) 1)	Define treeking in solid breekdown	(1)
	1) 	Write different emplication of high voltage	(1)
	m)	Write advantages of high voltage.	(1)
	n)	write advantages of high voltage.	(1)
Attem	pt any	tour questions from Q-2 to Q-8	
0-2		Attempt all questions	(14)
~ -	(a)	Explain the Liquid Purification system with test cell.	(07)
	(b)	Write note on paschen's law.	(07)
Q-3		Attempt all questions	(14)
	(a)	Define the Townsend first & second ionization co-efficient Also derive the	(14)
	(u)	equation for second ionization co-efficient I = I0e ^{αd} / (1- γ (e ^{αd} - 1).	(07)
	(b)	What are "Treeing" & "Tracking"? Explain clearly the two processes in	(07)
		Solid dielectrics.	
0-4		Attempt all questions	(14)
τ	(a)	Define the front and tail times of an impulse wave. What are the tolerances	(07)
		Allowed as per the specifications?	
	(b)	Write note on epoxy resins.	(07)
Q-5		Attempt all questions	(14)
	(a)	Explain the Marx and Modified Marx Circuit for Impulse generator.	(07)
	(b)	Explain the principle and constructions of an electrostatic voltmeter for high	(07)
		voltages. What are its merits and demerits for high voltage ac measurements?	
Q-6		Attempt all questions	(14)
	(a)	Describe with a neat sketch, the working of a Van de Graff generator. What	(07)
		are the factors that limit the maximum voltage obtained?	
	(b)	How a sphere gap can be used to measure the peak value of voltage?	(07)
Q-7		Attempt all questions	(14)
	(a)	Explain Bubble and Stress oil volume theory.	(07)
	(b)	Write note on resonant and cascade transformer.	(07)
Q-8		Attempt all questions	(14)
L	(a)	What is partial discharge? Explain partial discharge measurement.	(07)
	(b)	Write short note on testing of insulator.	(07)

