Seat No.: _____

Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY BE- SEMESTER- 1st / 2nd (SPFU)• REMEDIAL EXAMINATION - SUMMER 2015

Subject Code: ENG005 **Subject Name: Linear Electrical Network** Time: 10.30AM-01.00PM

Date: 04/06/2015

Total Marks: 70

Instructions: 1. Attempt Part-I & Part-II. Each Part Carries 35 Marks.

Part-I Objective Section (35 Marks) [Que. No. 1 to 25 carries 1 mark and 26 to 30 carries 2 mark.]

Q.1	.1 Which of the following method is based on KVL		
	A. Mesh(Loop) Current Method	B. Kirchhoff loop Method	
	C. Nodal Analysis	D. Super Node	
2	Maxwell's Circulating current Theorem		
	A. Utilizes KCL	B. Utilizes KVL	
	C. Is a network reduction method	D. None of these.	
3	A network is also called as		
	A. Circuit	B. Algorithm	
	C. Block	D. None of these	
4	Resistance of parallel combination of resistances is always less then the individual resistance		
	A. Equal	B. Greater	
	C. Smaller	D. None of these	
5	The Closed Path in a network is called		
	A. Node	B. Loop	
	C. Circuit	D. Diagram	
6	Resistance of conductor is inversely propositional to		
	A. Length	B. Area	
	C. Resistivity	D. All the Above	
7	Average Power in a purely resistive circuits equal to		
	A. Zero	B. Product of Average value of V& I	
	C. Product of peak value of V& I	D. Product of RMS value of V&I	
8			
	A. Both AC & DC voltage & current	B. AC Only	
	C. DC Only	D. None of the above	
9	An Electrical Circuit Contains	_	
	A. Passive Element	B. Active Element	
	C. Both Active & Passive element	D. None of the above	
10	Unit of Reactor is		
	A. Ohm	B. Ampere	
	C. Volt	D. Watt	
11	Power Factor of an AC circuit is given by		
	A. R/Z	B. Z/R	
	C. XL/R	D. R/XL	
12	RMS Value of Im is		

	A 0.7071m		0.0271m
	A. U./U/IIII	В.	
12	C. U.IIIM	D.	Imax
13	Power Factor of Purely resistive circuit will be	<u>}</u>	Leading
	A. Unity	В.	
	C. Lagging	D.	Zero
14	Nodal Analysis based on	1 -	
	A. KVL	В.	Both KCL & KVL
	C. Law of conservation of Energy	D.	KCL
15	Current is said to be alternating when it change	ges in	
	A. Magnitude Only	В.	Both magnitude & direction
	C. Direction only	Α.	None of the above
16	A circuit of zero leading power factor is	1	
	B. Pure inductive circuit	C.	Pure capacitive circuit
	D. Pure resistive circuit	E.	None of the above
17	An instantaneous change in voltage is not possible in		
	A. Capacitor	В.	Inductor
	C. Resistor	D.	All the above
18	The power factor of an RC circuits		
	A. Unity	В.	Zero
	C. Between 0 & 1	D.	None of the above
19	A capacitor is a perfect insulator for		
	A. Alternating current	В.	Direct current
	C. Direct as well as alternating current	D.	None of the above
20	In series resonance condition, the current is		
	A minimum	В	maximum
	C zero	D	None of the above
21	The time period of direct current.		
	A. Finite	В.	Zero
	C. Infinite	D.	Can not Say
22	A Wattmeter indicates power		
	A. Apparent	В.	Active
	C. Reactive	D.	None of the above
23	Unit of inductive reactance is	1	
	A. F	В.	R
	С. Н	D.	A
24	The energy stored by capacitor is		
	$A_{1/2} ^2$	B.	$^{1}/_{2}$ CV ²
	/2		
	$C CV^2$	A.	CV
25 Capacitive reactance is			
	A. Directly propositional to frequency	B.	Inverse ally propositional to frequency
	C. Both (A) & (B)	E.	None of the above
26	For the hybrid of h-parameters equal to		
	Ah11h22 +h12h21	B	h11h22 +h12h21
	C h11h22 -h12h21	D.	-h11h22 -h12h21
L			

27	A linear circuit obeys		
	A. Ohm's law	B. Faraday's laws	
	C. Both (A) & (B)	D. None of the above	
28	Which is not basic circuit elements of electric network?		
	A. R	B. C	
	C. Z	D. L	
29	Dynamic Impedance in parallel resonance circuit is		
	A. Z	B. R	
	C. L/CR	D. None of the above	
30	The energy lost in the form of heat in which element?		
	A. Resistor	B. Capacitor	
	C. Inductor	D. Both (B) & (C)	

Part-II Subjective Section (35 Marks)

Attempt any five questions. Each question carries seven marks.

- Q.1 Explain Kirchhoff's Laws.
- Q.2 Explain Thevenin's Theorem.
- Q.3 Explain delta to star transformation.
- Q.4 Explain resonance in series R-L-C circuit.
- Q.5 Explain the Superposition Theorem.
- Q.6 What is Laplace Transform? Explain importance and applications of Laplace Transform.
- Q.7 Derive equation of resonant frequency for parallel resonance condition. Compare series resonance with parallel resonance.
