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Printed Page: 1 of 2

B.TECH (SEM I) THEORY EXAMINATION 2020-21 BASIC ELECTRICAL ENGINEERING

Time: 3 Hours Total Marks: 70

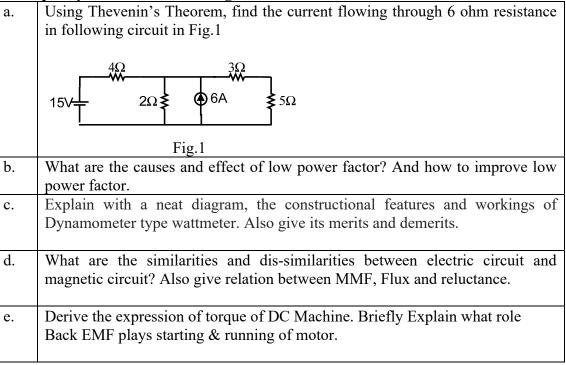
Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

Atte	mpt <i>all</i> questions in brief. $2 \times 7 = 14$
a.	Explain KCL & KVL theorem.
b.	Write statement for superposition theorem.
c.	Define Active & Reactive power.
d.	Write working principle of Transformer.
e.	3-phase 4 pole induction motor is supplied from 3-phase 50 Hz supply. Calculate Rotor Speed when slip is 4%
f.	Draw speed –torque characteristics of dc series motor?
g.	6-pole lap wound dc generator generates 220V at 1100rpm. If this generator is now wave wound and runs at 500 rpm, what will be the generated voltage?

SECTION B

2. Attempt any *three* of the following: $7 \times 3 = 2$



SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7 (a) Define active passive linear non linear and unilateral bilateral elements with

(a)	Define active, passive, finear, from finear and diffractar, offacerar elements with
	examples.
(b)	A circuit consists of three parallel branches. The branch currents are
	represented by $i_1 = 10 \text{ Sin wt}$, $i_2 = 20 \text{ Sin (wt} + 60^{\circ})$, $i_3 = 7.5 \text{ Sin (wt} - 30^{\circ})$.
	Find the resultant current and express it in the form $i=I_m \sin(wt+\phi)$.

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7.

				Sub	ject	Co	de: I	REE	101	
Roll No:										

Printed Page: 2 of 2

4.	Atter	mpt any <i>one</i> part of the following:	$7 \times 1 = 7$
	(a)	Derive the expression of resonant frequency of parallel R-L-C Cir	cuit.
	(b)	An Electrical circuit connected to v=100 sin(628t+ 60) it draw sin(628t+ 30), identify the circuit, also find the value of Resistar Power, Power Factor.	

5.	Atten	npt any <i>one</i> part of the following:	$7 \times 1 = 7$
	(a)	A balanced star-connected load of impedance, Z=10 \(\in 60°Ω \) is a	connected to
		line voltage of 230V.Obtain the phase current, phase voltage supplied to load	and power
	(b)	Explain with neat diagram, working principle of Moving Iron ty measuring instruments also explain different error occur in it.	ype electrical

6.	Atten	npt any <i>one</i> part of the following: $7 \times 1 = 7$
	(a)	What are the methods of power measurement in 3-phase AC circuit? Explain two wattmeter methods for delta connected load.
	(b)	Explain working principle of Auto transformer; write its advantages & disadvantages.

a)	npt any <i>one</i> part of the following: $7 \times 1 = 7$ Why is the synchronous motor not self starting? Explain advantages &
u)	
	disadvantages along with applications of Synchronous motor.
b)	Explain the working of three phase induction motor. Explain slip-torque
	characteristics of three phase induction motor.