PAPER ID-310969

Subject Code: KEE101T

Roll No: | | | | | | | | | | | | | |

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

Time: 3 Hours *Total Marks: 100*

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

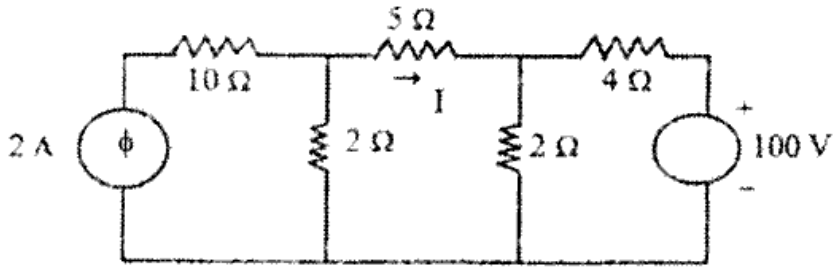
SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

Qno.	Question	Marks	CO
a.	Define ideal voltage and current source.	2	1
b.	Define Active and Passive Elements.	2	1
c.	Define Form factor and Peak Factor.	2	2
d.	Classify the losses in transformer.	2	3
e.	Explain True power, reactive power and Apparent power	2	3
f.	What is meant by the term speed regulation	2	4
g.	Why transformer is not used on DC	2	4
h.	Define the term slip	2	4
i.	Write down the application of Synchronous Motor.	2	4
j.	Write application of Single Phase Induction Motor.	2	4

SECTION B

2. Attempt any *three* of the following:

Qno.	Question	Marks	CO
a.	Apply mesh analysis , obtain the current through 5 ohm resistance in the following circuit 	10	1
b.	Obtain equivalent Star from Delta in Star-Delta Transformation	10	1
c.	Derive expression for average value and RMS value of Half wave rectifier voltage output.	10	2
d.	Why Single Phase induction motor is not self starting. What are different methods to make self starting. Explain one of them	10	3
e.	A balanced star connected load of (6+j8) ohm per phase connected to a balance 3 phase, 400V supply. Find the line current, power factor, power and total volt-amperes.	10	3

SECTION C

3. Attempt any *one* part of the following:

Qno.	Question	Marks	CO
a.	Show the condition for resonance in a parallel R-L-C circuit. State the application of series.	10	2
b.	If load draws a current of 10A at 0.8 p.f lagging, when connected to 100 volt supply, calculate the values of real, reactive and apparent powers. And also find the resistance of load.	10	2

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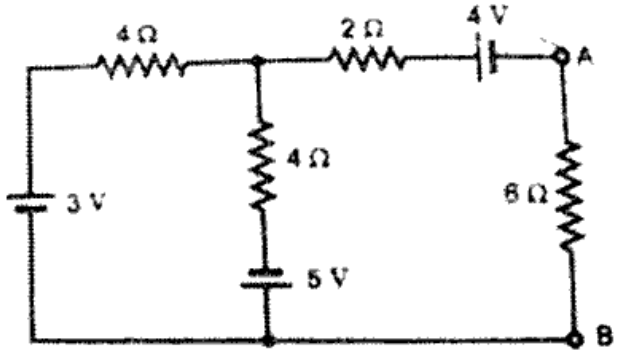
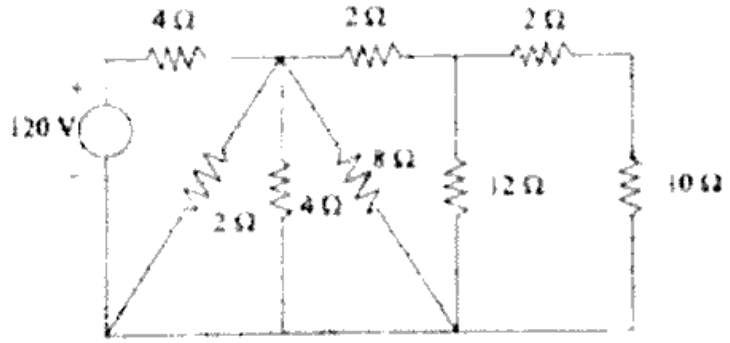
4. Attempt any *one* part of the following:

Qno.	Question	Marks	CO
a.	Using Thevenin Theorem , Determine the current through 6 ohm 	10	1
b.	Find the equivalent resistance of the following circuit and calculate the current supplied by source. 	10	1

5. Attempt any *one* part of the following:

a.	Derive the Emf equation of single phase transformer. A single phase 100KVA, 6.6kV/230 V, 50 Hz, transformer has 90% efficiency at 0.8 Lagging power factor both at full load and also at half load. Determine iron and copper loss at full load for transformer.	10	3
b.	Derive the relationship between line current, Phase current, line voltage and phase voltage in a 3-phase star-connected and delta connected circuits.	10	3

6. Attempt any *one* part of the following:

a.	A 4-Pole , 3 phase induction motor runs at 1440 rpm. Supply voltage is 500 V at 50 Hz. Mechanical power output is 20.3 Hp and mechanical loss is 2.23 Hp. Calculate: (i) Mechanical Power Developed (ii) Rotor Cu Loss (iii) Efficiency	10	4
b.	Draw and explain the Torque-Slip Characteristics of Three Phase Induction Motor.	10	4

7. Attempt any *one* part of the following:

a.	Explain (i) MCB (ii) ELCB (iii)MCCB	10	5
b.	Explain different types of Wires and Cables.	10	5