Code: 13A99101

R13

B.Tech I Year (R13) Supplementary Examinations June 2017

BASIC ELECTRICAL & ELECTRONICS ENGINEERING

(Common to CSE and IT)

Time: 3 hours Max. Marks: 70

Answer all the questions
(Use single answer booklet only)
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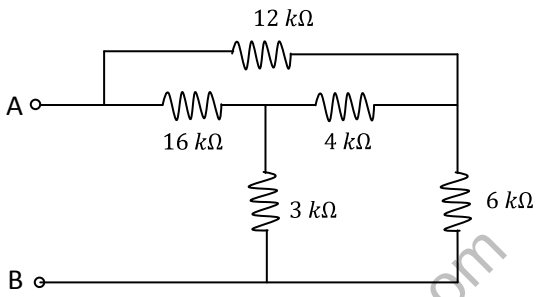
PART – A

UNIT – I

1 Three impedances $Z_1 = (10 + j10)\ \Omega$, $Z_2 = \text{j}\ 16\ \Omega$ and $Z_3 = 8\ \Omega$ are connected in series to an unknown voltage source V. Find I and V if the voltage drop across Z_3 is $21.08 \angle 18.43°$ volts.

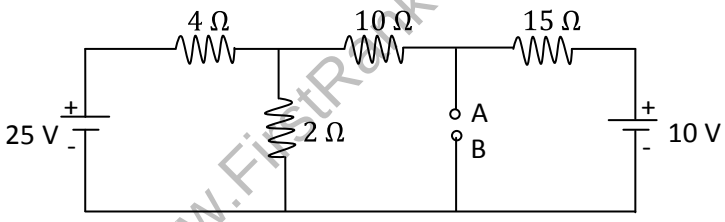
OR

2 Find the equivalent resistance between the terminals AB using star delta and delta star transformation.



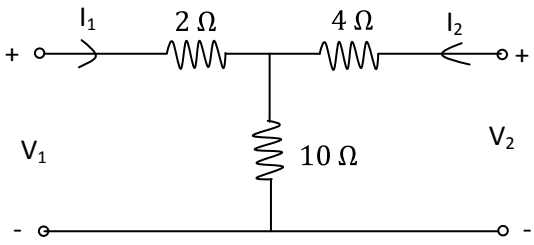
UNIT – II

3 Obtain the Thevenin's equivalent circuit at terminals AB of the circuit shown below.



OR

4 Find the transmission parameters for the network shown below.



UNIT – III

5 Explain the principle of operation of 3-phase induction motor. Also derive the expression for torque.

OR

6 With a neat diagram, explain the construction of DC generator.

Contd. in page 2

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PART – B

UNIT – I

7 Explain the current components in a PN junction diode. Derive the diode current equation.

OR

8 Draw the block diagram of series and shunt voltage regulator and explain its operation.

UNIT – II

9 Describe the construction and explain the operation of depletion mode MOSFET. Also draw the static characteristics.

OR

10 With necessary circuit and waveform, explain the switching characteristics of a transistor in detail.

UNIT – III

11 A negative feedback of $\beta = 0.01$ is applied to an amplifier of gain 500. Calculate the change in overall gain of the feedback amplifier if the internal amplifier is subjected to a gain reduction of 10%.

OR

12 Explain the basic forms of Op-Amp as inverting and non-inverting amplifier.

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