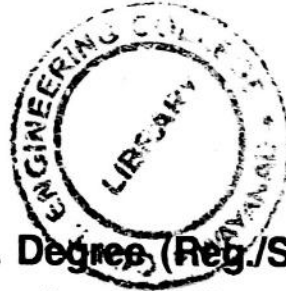




K15F 0064

Reg. No. : .....

Name : .....



**Third Semester B.Tech. Degree (Reg./Sup./Imp. – Including Part Time)  
Examination, November 2015  
(2006 and Earlier Admn.)**

**PTEC/EC 2K 302 : ELECTRICAL CIRCUITS AND NETWORK THEORY**

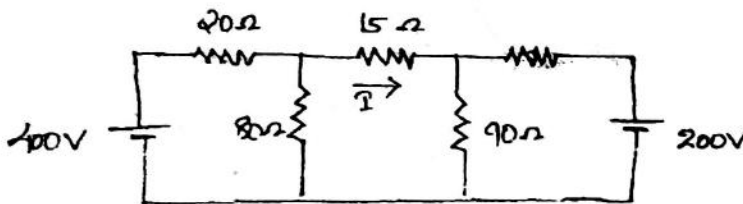
Time : 3 Hours

Max. Marks : 100

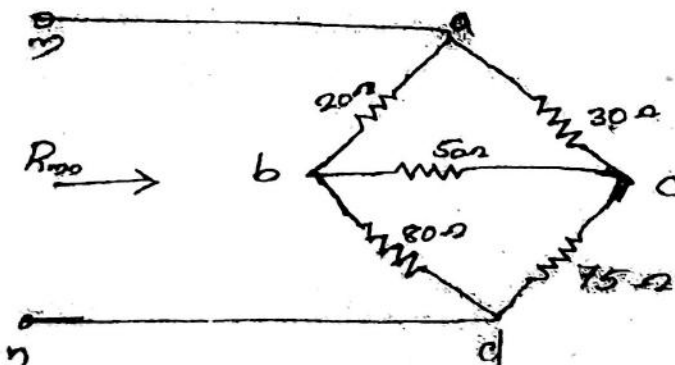
PART – A

(5 marks each)

1. Using node analysis find the current in the  $15\Omega$  resistor of the network shown in the figure.



2. Calculate the  $R_{mn}$  of the network shown in figure.



3. Find the Laplace transform of unit ramp input and parabolic input signals.

P.T.O.



4. Find the inverse Laplace transform of

$$\frac{2}{s^2} + \frac{1}{s^2 + 16}$$

5. Obtain the relationship between hybrid and transmission parameters.

6. Write a short note on band elimination filters.

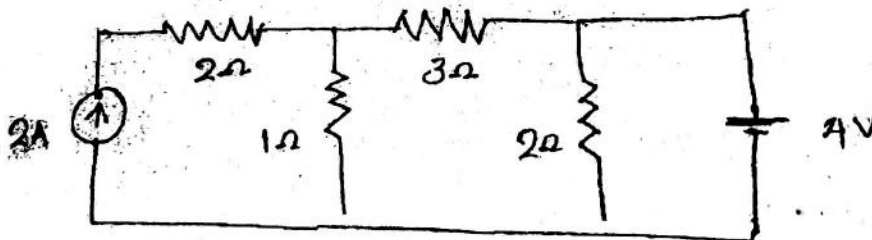
7. Write a short note on the properties of Hurwitz's polynomials.

8. Write a short note on even and odd functions.

### PART - B

9. a) Explain superposition theorem and determine the current through  $R = 3\Omega$  resistor of the circuit using superposition theorem.

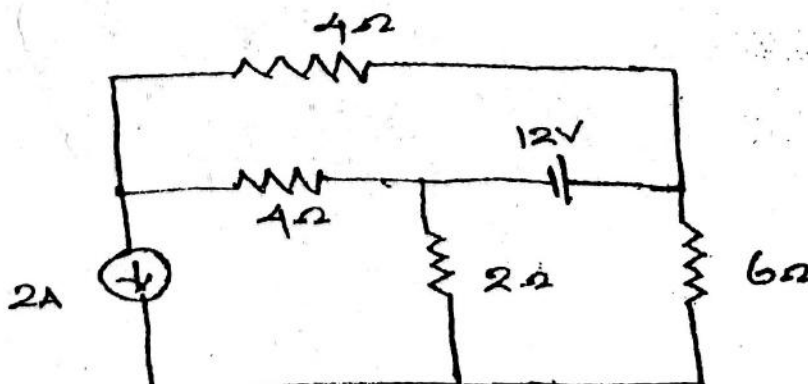
15



OR

b) Explain Thevenin's theorem find the current through the  $6\Omega$  resistor using Thevenin's theorem.

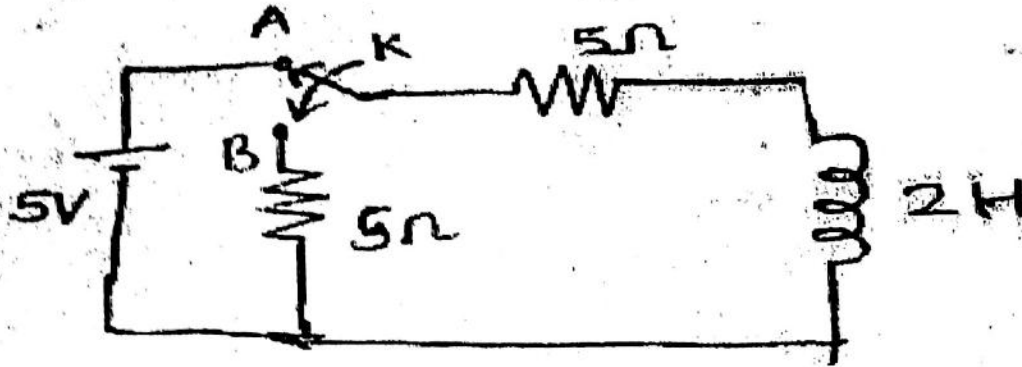
15





10. a) In the circuit shown in figure switch is thrown from position A to position B at time  $t = 0$ , the current having previously reached its steady state determine  $i(t)$  after switching.

15



OR

- b) Find the Laplace transform of

(3×5=15)

- 1)  $t^2$
- 2)  $t^2 e^{-at}$
- 3)  $u(t)$ .

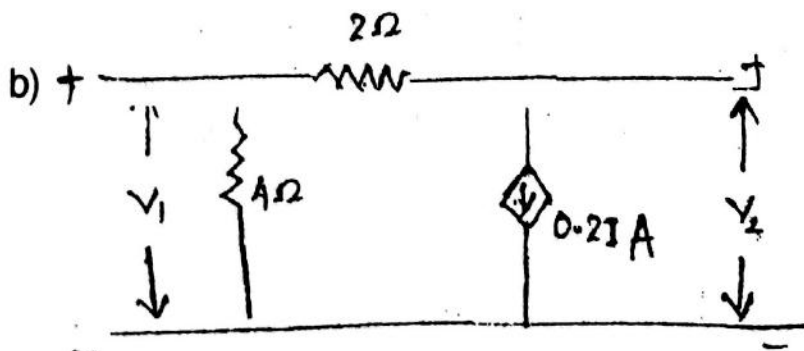
11. a) A network has the transmission parameter of

$$\begin{bmatrix} 1+J & 100 \\ 0.001J & 1 \end{bmatrix}$$

Determine the parameter for two such networks in cascade. Also show the steps in detail.

15

OR



The network contains a current controlled source. For the network find Y and Z parameters.

15