



Sanjay Ghodawat University, Kolhapur

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

2018-19

EXM/P/09/01

Year and Program: 2018-19

School of Technology

Department of Electrical & Electronics

Electrical & Electronics

SY B.Tech

Course Code: EET205

Course Title: Network Analysis.

Semester - I

Day and Date

Saturday 9 Dec 18

End Semester Examination  
(ESE)

Time:

2:30 pm to 5:30 pm

Max Marks: 100

**Instructions:**

- 1) All questions are compulsory.
- 2) Assume suitable data wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Resistance values are in  $\Omega$ .

Q.1

Solve the following.

Marks	Bloom's Level	CO
-------	---------------	----

- a) Find the equivalent Resistance  $R_{a-b}$  for the circuit in fig 1 a. 1

07	L2	CO1
----	----	-----

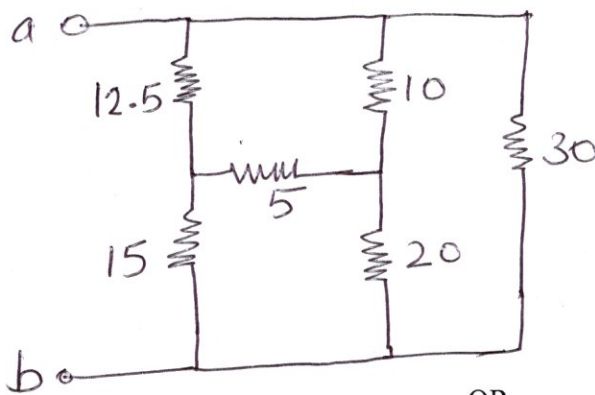


fig. 1 a. 1

OR

- a) Find mesh currents in fig 1 a. 2

07	L2	CO1
----	----	-----

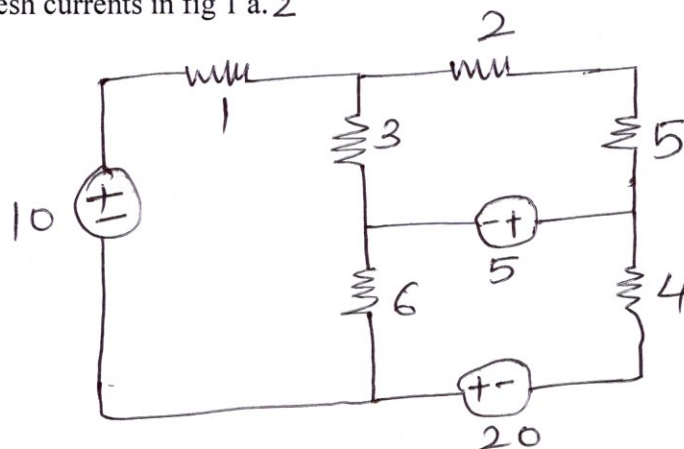


fig. 1 a. 2

- b) Find 'I' by using Superposition theorem in fig 1 b. 1

08	L3	CO2
----	----	-----

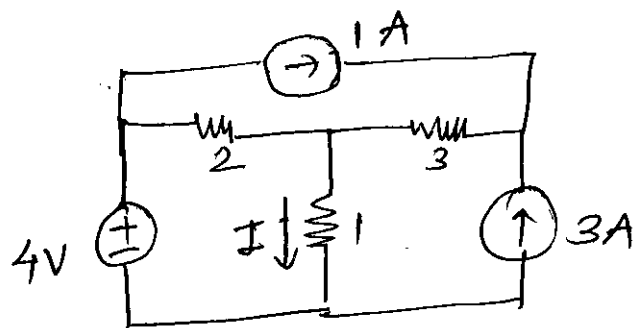


Fig. 1 b.1

OR

- b) Find  $R_{th}$  and  $V_{th}$  across terminals a-b in fig 1 b. 2

08

L3

CO2

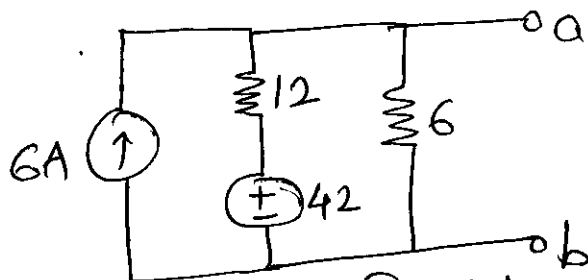


Fig 1. b. 2

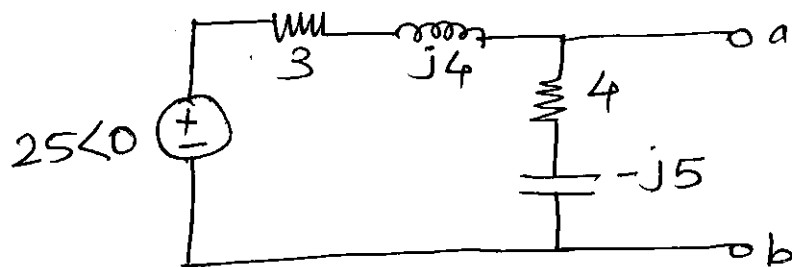
Q.2 Solve the following.

- a) Find  $R_N$  and  $I_N$  across terminals a-b in fig 2 a. 1

07

L3

CO3



OR Fig 2. a. 1

- a) Find 'I' & apply Reciprocity theorem in fig 2 a. 2

07

L2

CO3

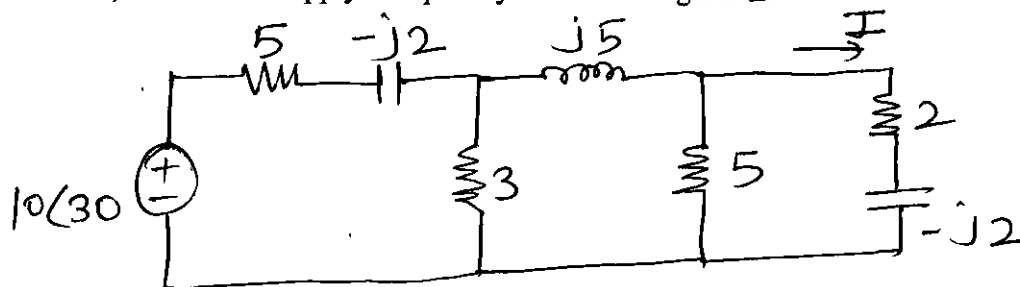


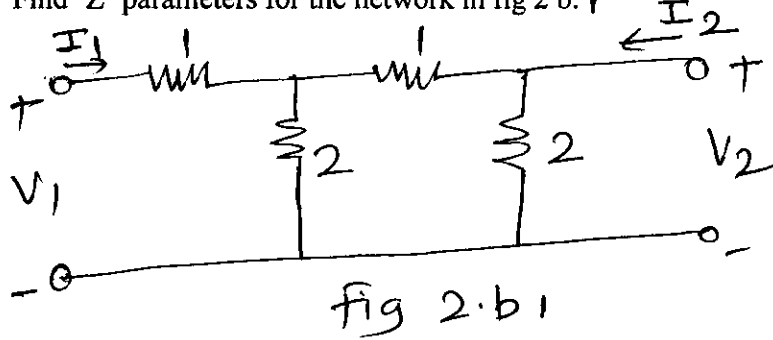
fig 2. a. 2

- b) Find 'Z' parameters for the network in fig 2 b. 1

08

L2

CO4



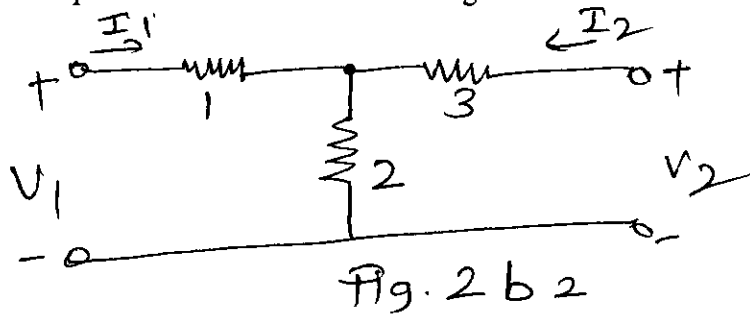
OR

- b) Find 'Y' parameters for the network in fig 2 b. 2

08

L2

CO4



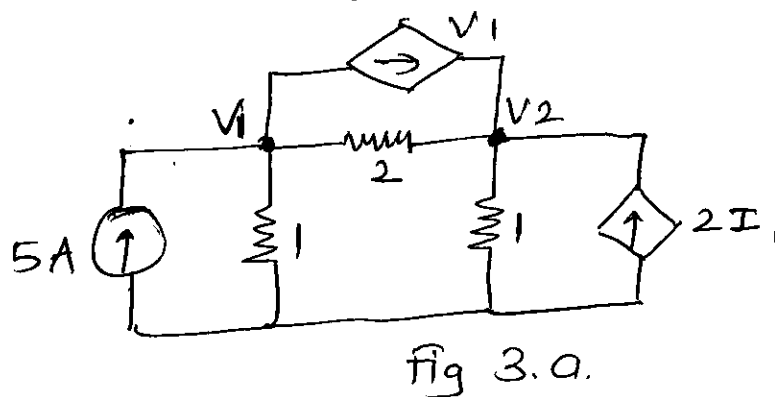
**Q.3 Solve any Two**

- a) Find voltages  $V_1$  and  $V_2$  in fig 3 a.

08

L3

CO1

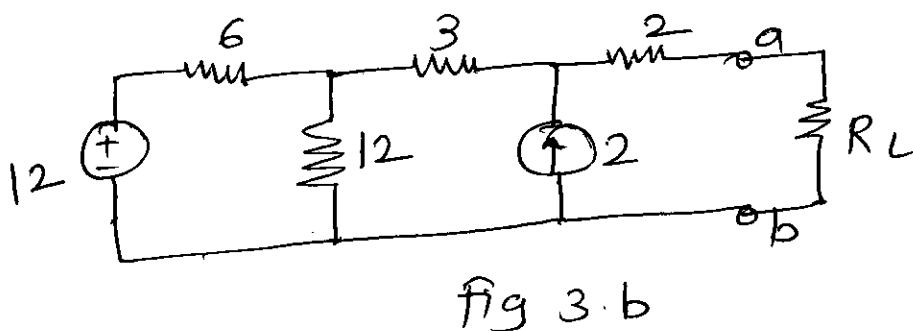


- b) Find  $R_L$  also find maximum power through  $R_L$  in fig 3 b.

08

L3

CO2

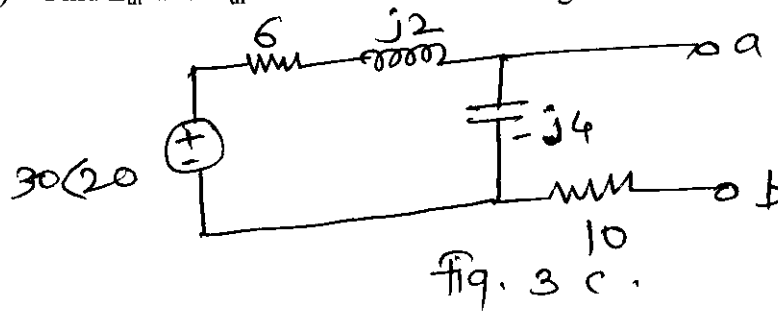


- c) Find  $Z_{th}$  and  $V_{th}$  across terminals a-b in fig 3 c.

08

L3

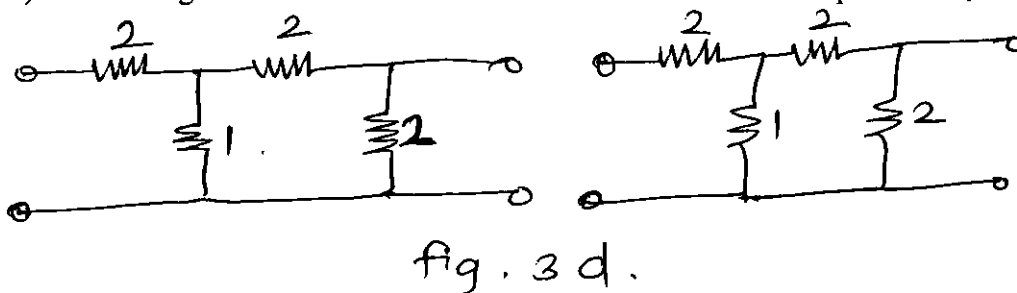
CO3



- d) Following two networks are connected in cascade find ABCD parameter, 08

L3

CO4



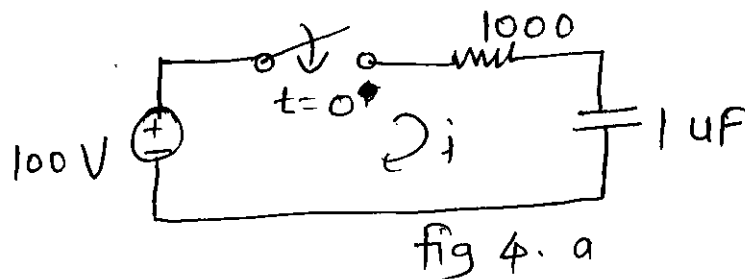
Q.4 Solve any Two

- a) Find value of ' $i$ ', ' $di/dt$ ', ' $d^2 i/dt^2$ ' at time  $t = 0^+$  in fig 4 a.

09

L3

CO5

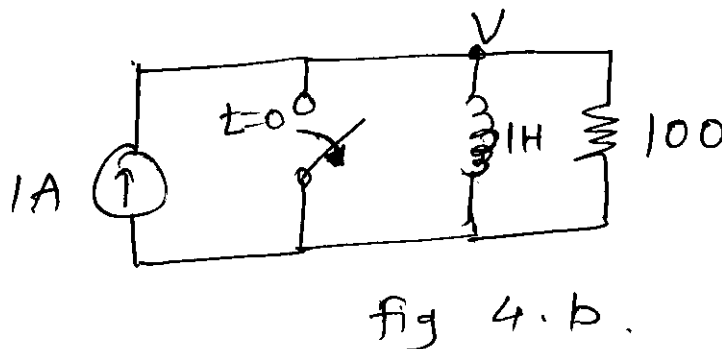


- b) Find value of ' $V$ ', ' $dv/dt$ ', ' $d^2 v/dt^2$ ' at time  $t = 0^+$  in fig 4 b.

09

L3

CO5

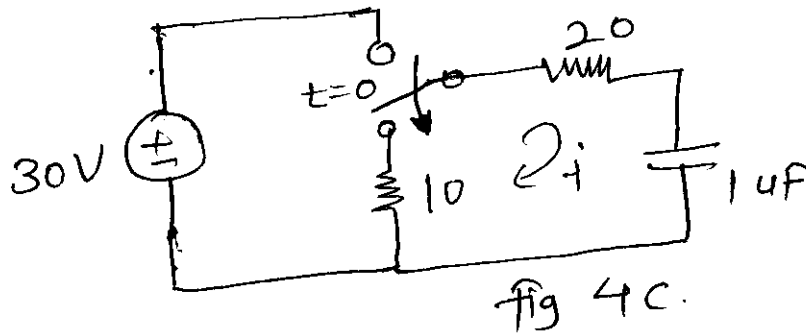


- c) Find value of ' $i$ ', ' $di/dt$ ', ' $d^2 i/dt^2$ ' at time  $t = 0^+$  in fig 4 c.

09

L3

CO5



Q.5

Solve any Two

- a) Find Laplace transform for the function in fig 5 a.

09

L3

CO6

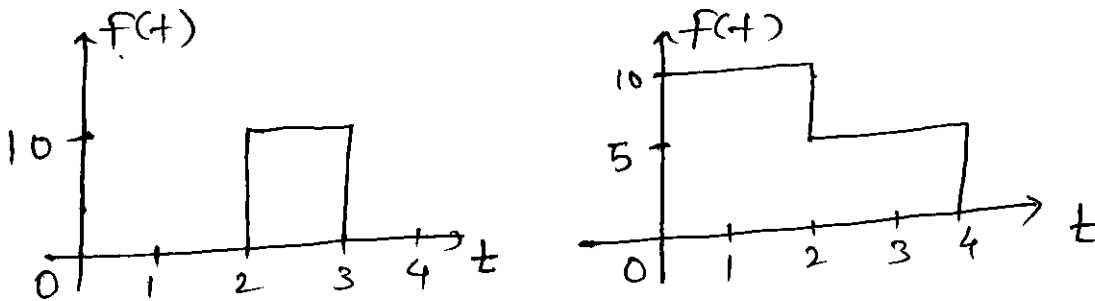


fig 5.a.

- b) Use Laplace transform to solve following differential equation.

09

L2

CO6

$$\frac{d^2 v(t)}{dt^2} + 6 \frac{dv(t)}{dt} + 8v(t) = 2u(t)$$

assume  $v(0) = 1$  &  $v'(0) = -2$

- c) Find  $V(t)$  in fig 5 c by using Laplace. assume zero initial conditions.

09

L3

CO6

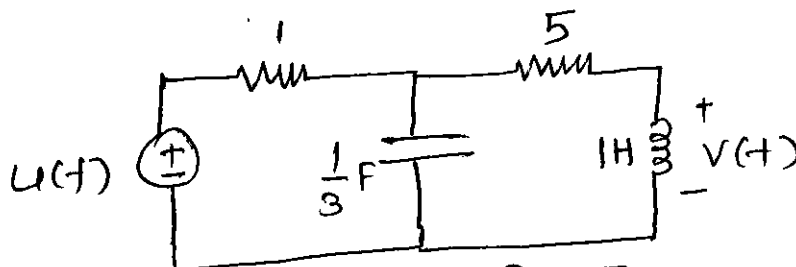


fig 5.c

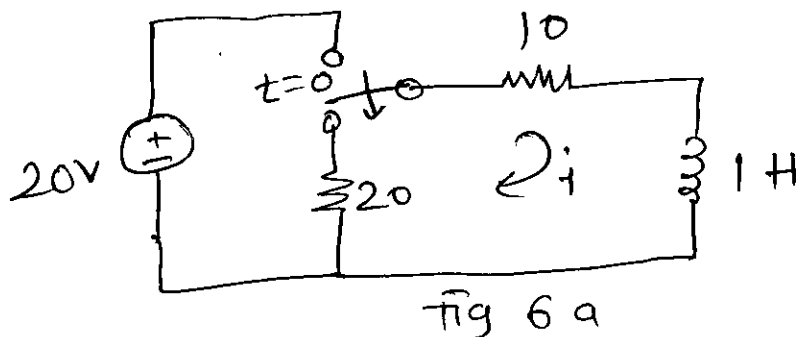
Q.6 Solve any Three

- a) Find value of ' $i$ ', ' $di/dt$ ', ' $d^2 i/dt^2$ ' at time  $t = 0^+$  in fig 6 a.

06

L3

CO5

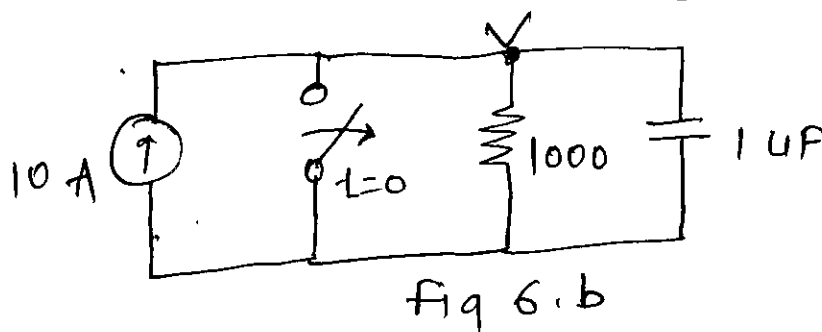


- b) Find value of ' $V$ ', ' $dv/dt$ ', ' $d^2 v/dt^2$ ' at time  $t = 0^+$  in fig 6 b.

06

L3

CO5

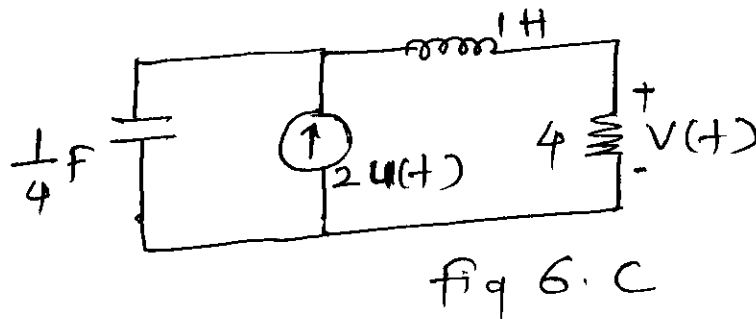


- c) Find  $V(t)$  in fig 6 c by using Laplace. Assume zero initial conditions.

06

L3

CO6



- d) Find  $Y(t)$  in the following integro-differential equation.

06

L2

CO6

$$\frac{dY(t)}{dt} + 5Y(t) + 6 \int_0^t Y(t) dt = 4(t)$$

assume  $Y(0) = 2$ .