



Instructions:

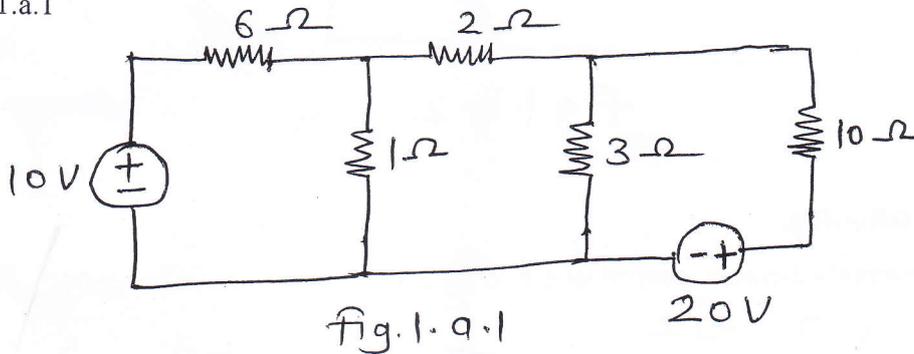
- 1) All questions are compulsory.
- 2) Assume suitable data wherever necessary.
- 3) Figures to the right indicate full marks.

Q.1 Solve the following.

Marks	Bloom's	CO
	Level	

- a) Apply Mesh analysis to find loop currents for the circuit shown in fig 1.a.1

07	L3	CO1
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OR

- a) Apply Nodal analysis to find 'V_x' for the circuit shown in fig 1.a.2

07	L3	CO1
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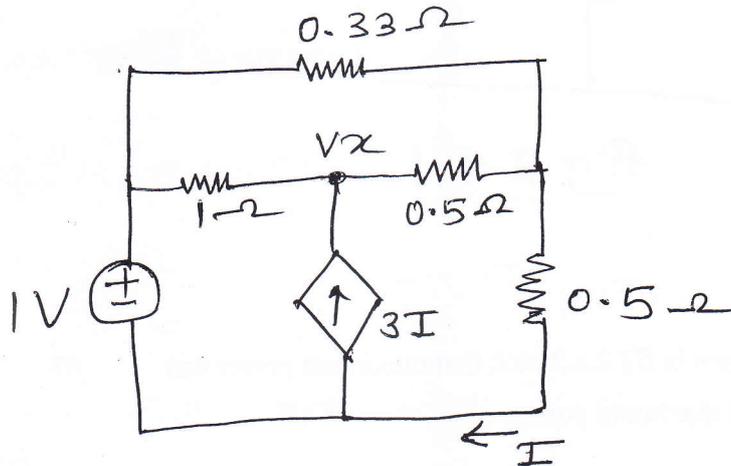
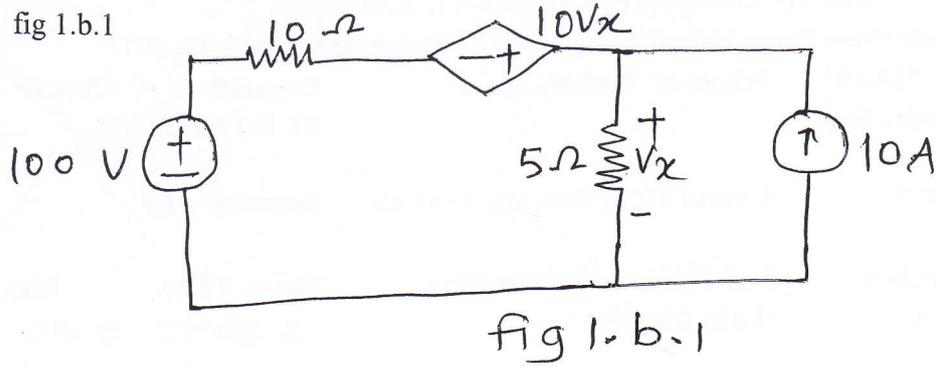


fig 1.a.2

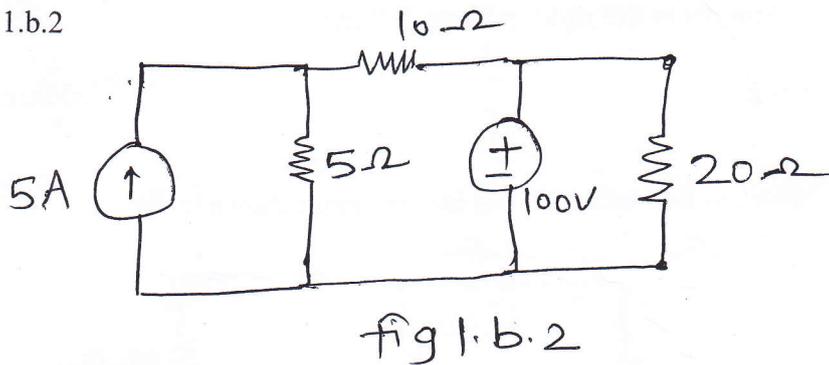
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- b) Find current through 10 ohm resistor by using Superposition theorem in 08 L3 CO2
fig 1.b.1



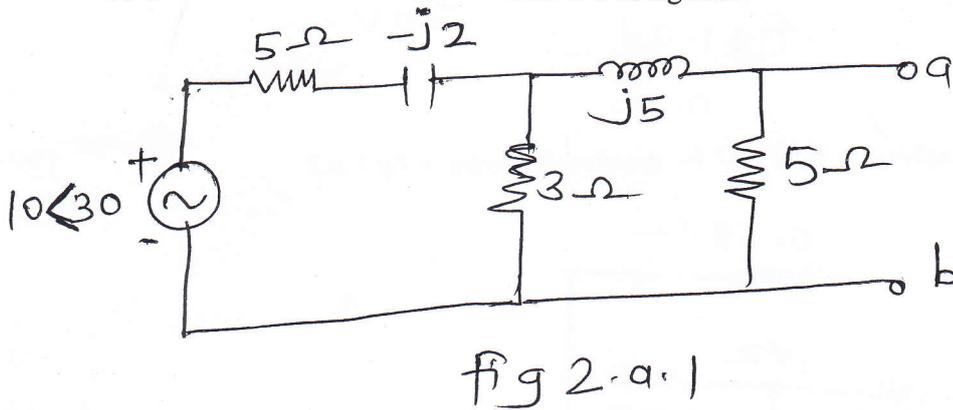
OR

- b) Find current through 20 ohm resistor by using Thevenin's theorem in 08 L3 CO2
fig 1.b.2



Q.2 Solve the following.

- a) Apply Thevenin's theorem at terminal a-b in fig 2.a.1 07 L3 CO3

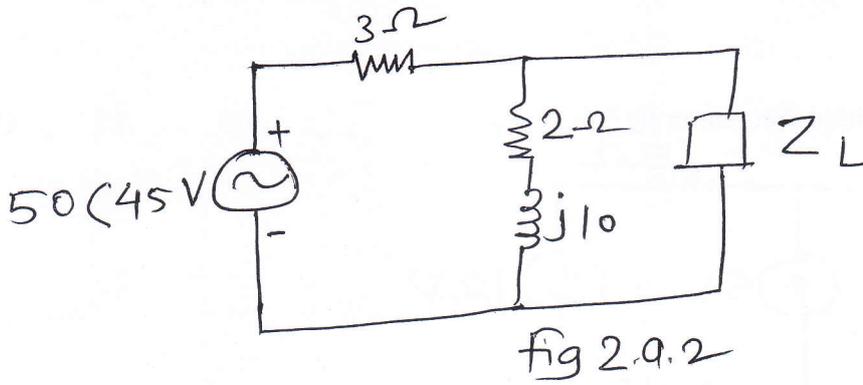


OR

- a) Find the value of Z_L shown in fig 2.a.2 such that maximum power can 07 L3 CO3
be transferred to it. Find maximum power.

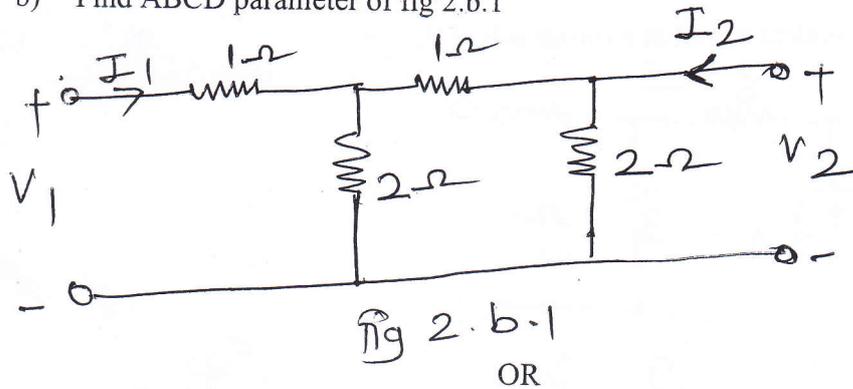
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b) Find ABCD parameter of fig 2.b.1

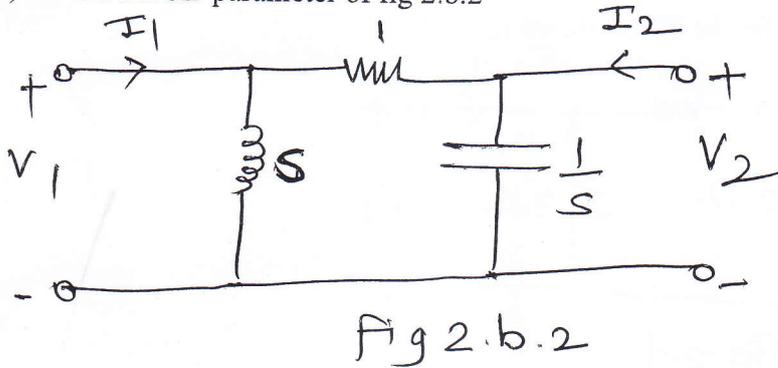
08 L3 CO4



OR

b) Find ABCD parameter of fig 2.b.2

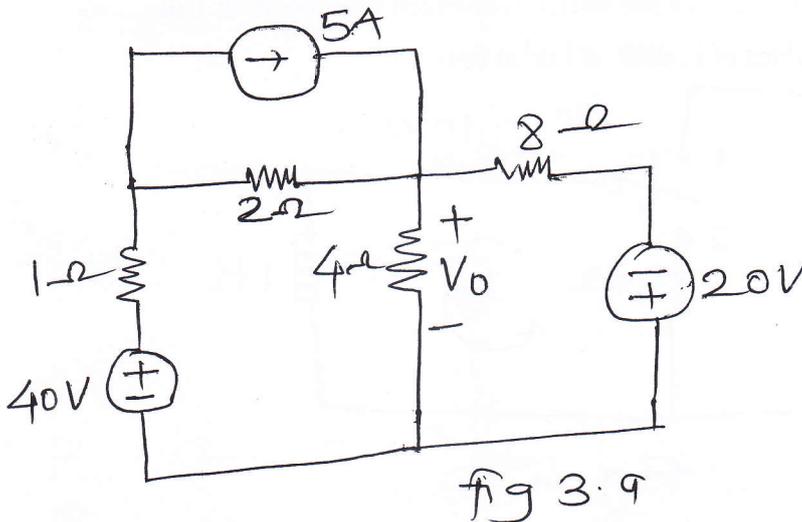
08 L3 CO4



Q.3 Solve any Two

a) Find V_o by using ~~mesh~~-mesh analysis in fig 3.a

08 L3 CO1



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b) Find V_o by using superposition theorem in fig 3.b

08

L3

CO2

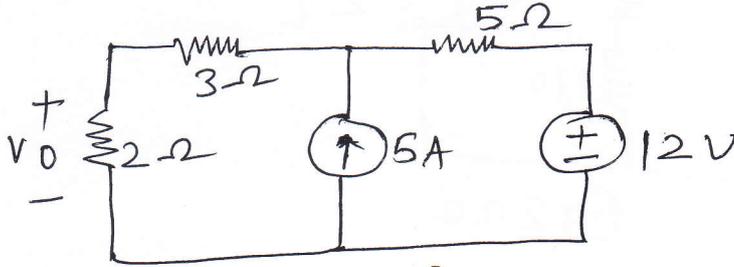


fig 3.b.

c) Find Thevenin's equivalent circuit at terminal a-b of fig 3.c

08

L3

CO3

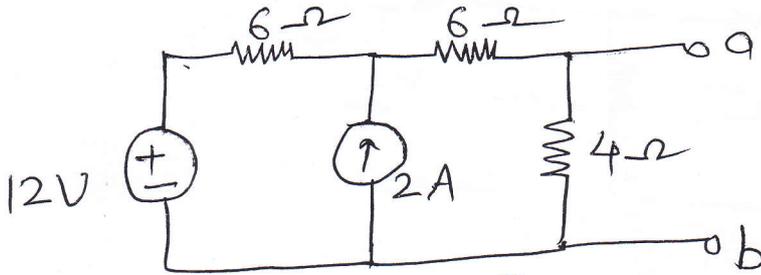


fig 3.c

d) Determine Y parameters for the circuit shown in fig 3.d

08

L3

CO4

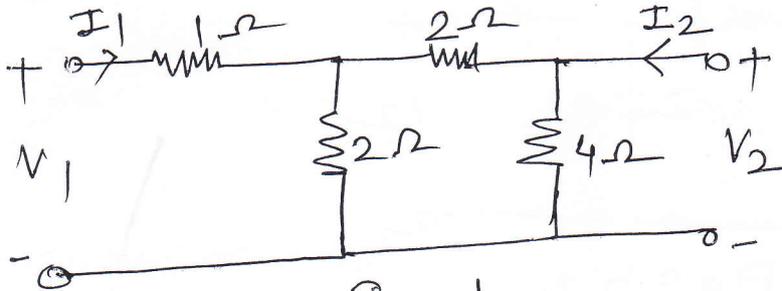


fig 3.d.

Q.4 Solve any Two

a) In the network shown in fig 4.a the switch is changed from position 1 to 2 at time $t=0$, find values of i , di/dt , d^2i/dt^2 at time $t=0^+$

09

L3

CO5

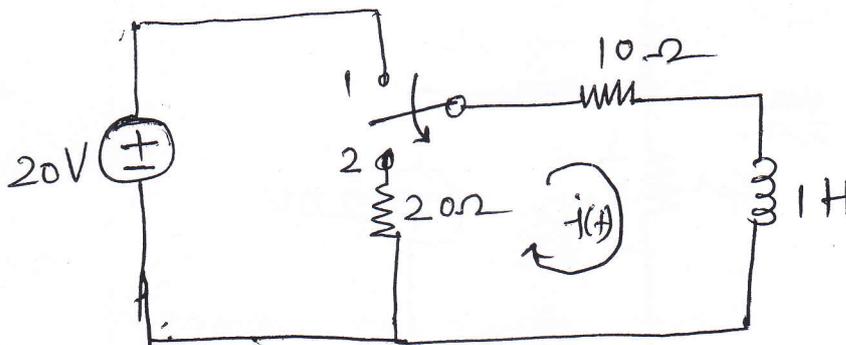
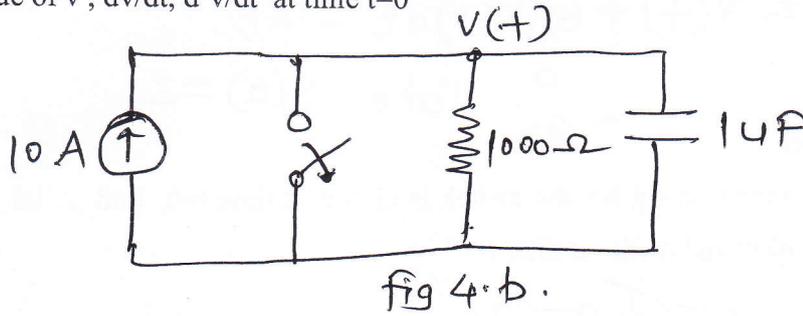


fig 4.a.

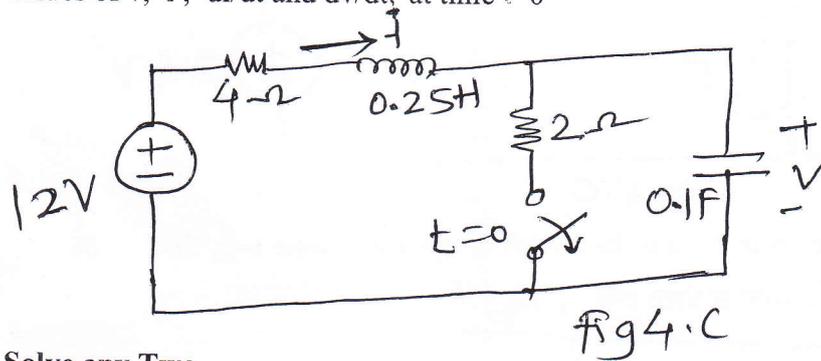
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- b) In the network shown in fig 4.b the switch is opened at time $t=0$, find value of v , dv/dt , d^2v/dt^2 at time $t=0^+$ 09 L3 CO5

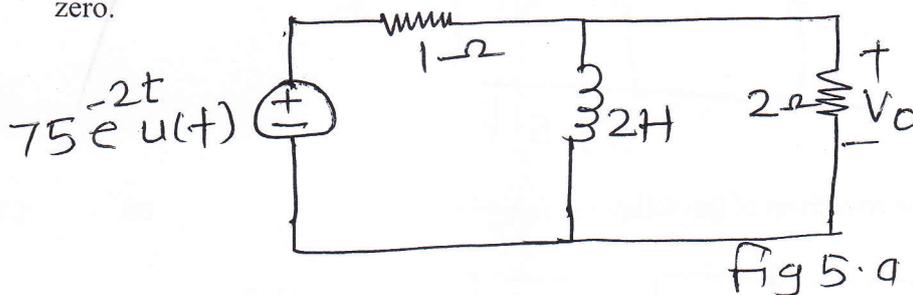


- c) In the network shown in fig 4.c the switch is opened at time $t=0$, find values of v , i , di/dt and dv/dt , at time $t=0^+$ 09 L3 CO5

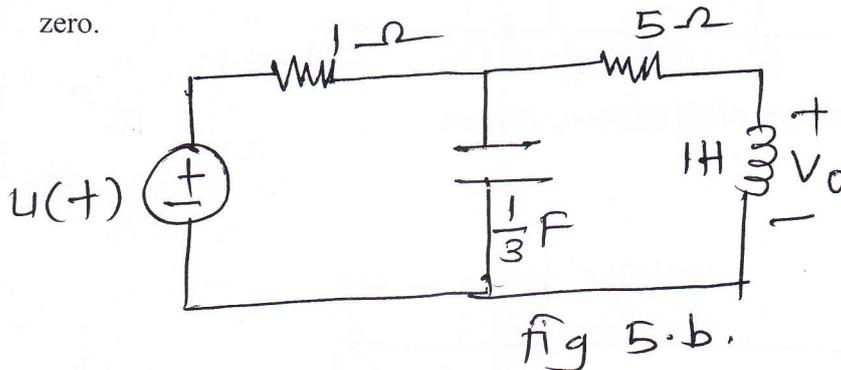


Q.5 Solve any Two

- a) Find V_0 for the circuit shown in fig 5.a, assume initial conditions are zero. 09 L3 CO6



- b) Find V_0 in the circuit shown in fig 5.b, assume initial conditions are zero. 09 L3 CO6



- c) Solve for the response $Y(t)$ in the following differential equation. 09 L3 CO6

$$\frac{dy}{dt} + 5y(t) + 6 \int_0^t y(t) dt = 4(t),$$

Take $Y(0) = 2$

Q.6 Solve any Three

- a) In the network shown in fig 6.a the switch is closed at time $t=0$, find 06 L3 CO5
values of v , i , di/dt and dv/dt , at time $t=0^+$

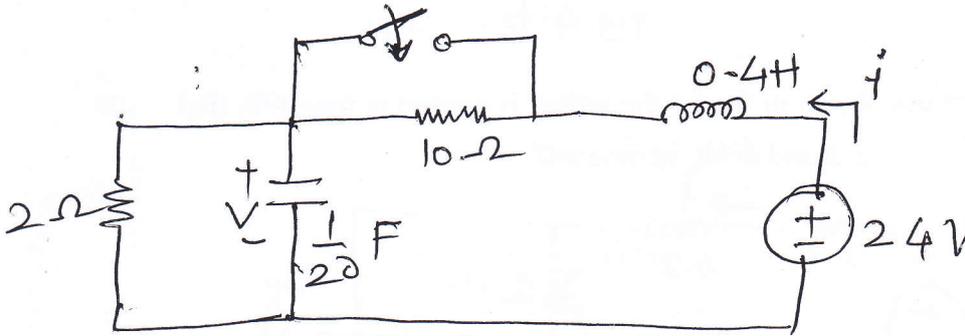


fig 6.9

- b) In the network shown in fig 6.b the switch is opened at time $t=0$, find 06 L3 CO5
value of v , dv/dt , d^2v/dt^2 at time $t=0^+$

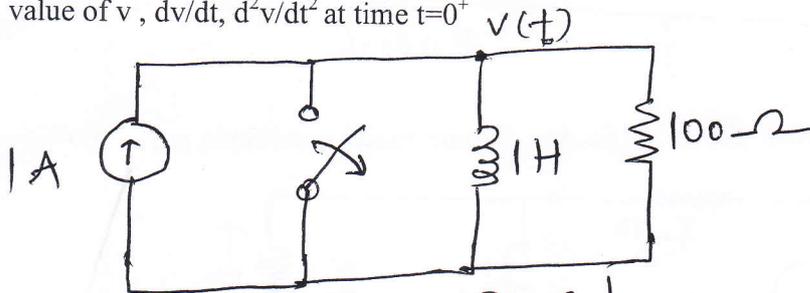
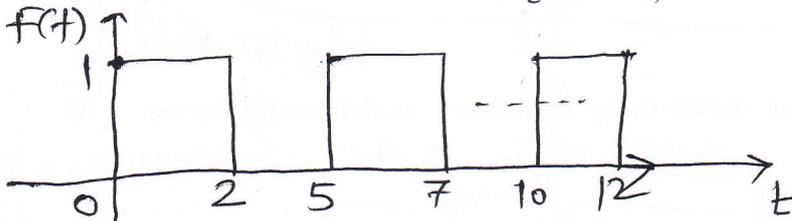


fig 6.b.

- c) Find the Laplace transform of the following function, 06 L3 CO6



- d) Find the Laplace transform of the following function, 06 L3 CO6

