Total No. of Questions—**8**] [Total No. of Printed Pages—**6**

Seat No.	

[5252]-148

S.E. (Electrical Enigneering) (Second Semester)

EXAMINATION, 2017

NETWORK ANALYSIS

(2012 PATTERN)

Time : Two Hours **Maximum Marks : 50**

N.B. **:—** (*i*) Answers Q. No. **1** or Q, No. **2**, Q. No. **3** or Q. No. **4**, Q. No. **5** or Q. No. **6**. Q. No. **7** or Q. No. **8**.

(*ii*) Neat diagrams must be drawn wherever necessary.

(*iii*) Figures to the right side indicate full marks.

(*iv*) Use of calculator is allowed.

(*v*) Assume suitable data if necessary.

1. (*a*) Reduce the given network figure to a single voltage source and impedance. [6]

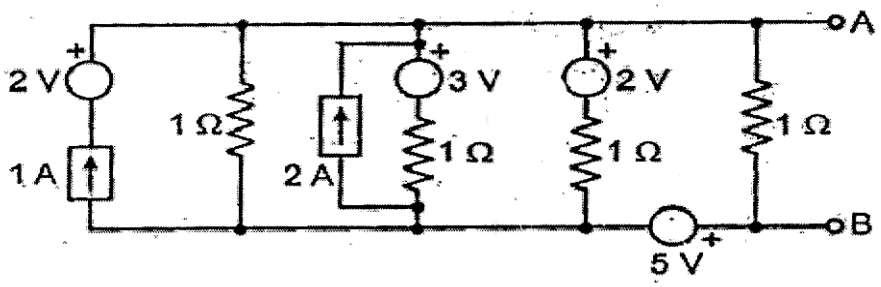

Fig. 1

P.T.O.

(*b*) Obtain Norton's equivalent network between terminals A and B as shown in fig.2. [7]

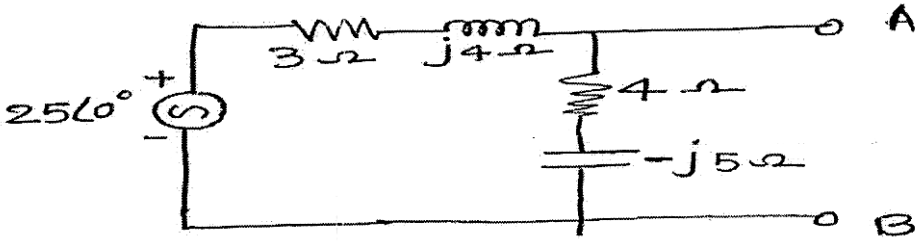

Fig. 2

Or

2. (*a*) Find current through $(3 - j4)\ \Omega$ by using Thvenin's Theorems as shown in fig (3). [7]

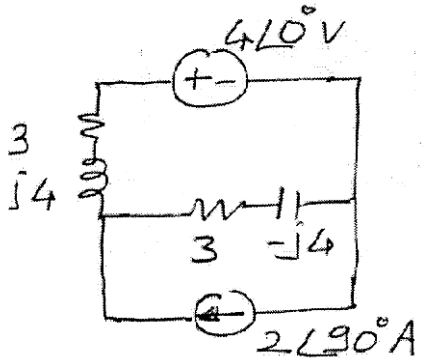

Fig. 3

(*b*) Find current through 5 ohm resistance by using Kirchhoff's voltage law. [6]

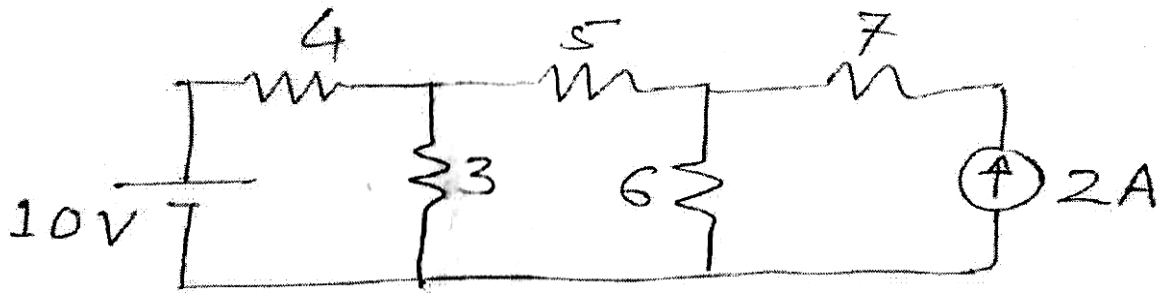

Fig. 4

3. (*a*) Find voltage V for t = 0.1 sec. after closing the switch at t = 0.

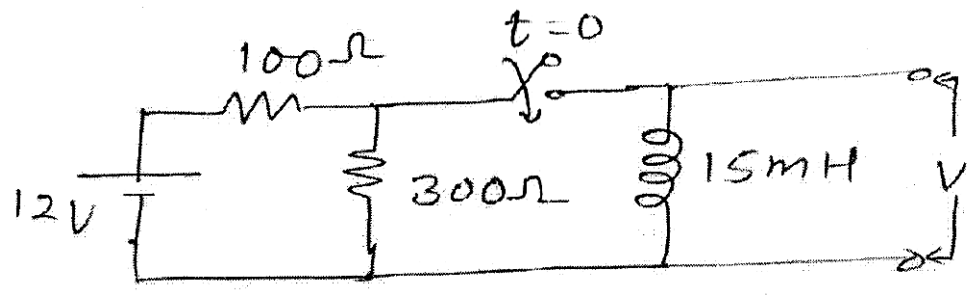

Fig. 5

(*b*) Write short note on initial and final condition, justify your answer. [6]

Or

4. (*a*) After being on position 1 for long time, the switch is thrown on position 2 at time t = 0, find current using Laplace Transform technique. [7]

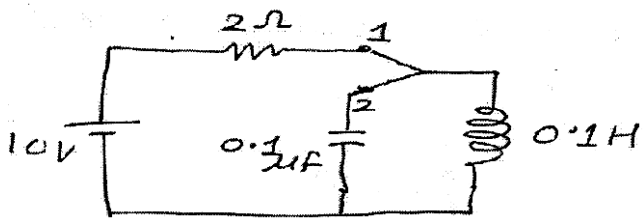

Fig. 6

(*b*) The switch is closed at time t = 0, obtain the particular solution for current $i(t)$ usince Laplace Transform technique. Assume initial condition is zero. [6]

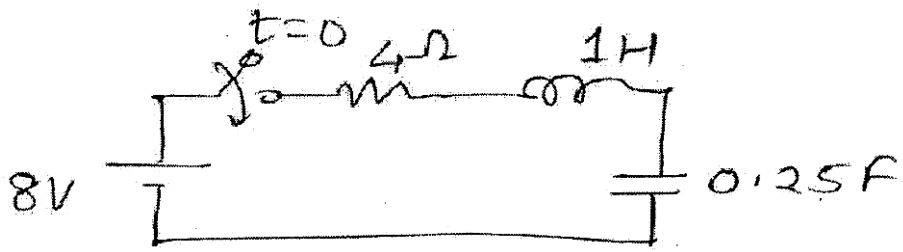

Fig. 7

5. (*a*) Find Z parameter for the circuit as shown in fig. 8. [6]

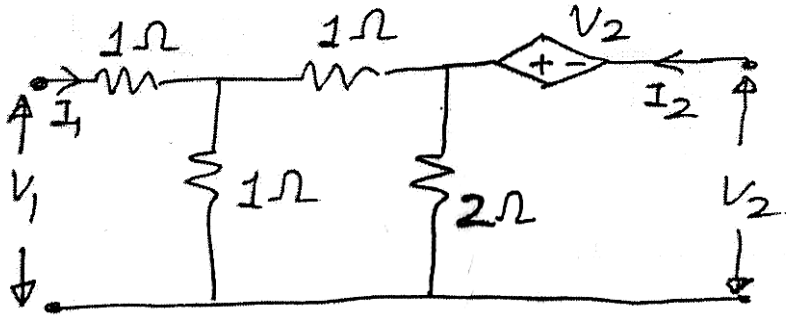

Fig. 8

(*b*) In the circuit shown in fig.(9) find insertion loss in decibel in load resistance of 10 ohm, Inserted network is shown in dotted portion. [6]

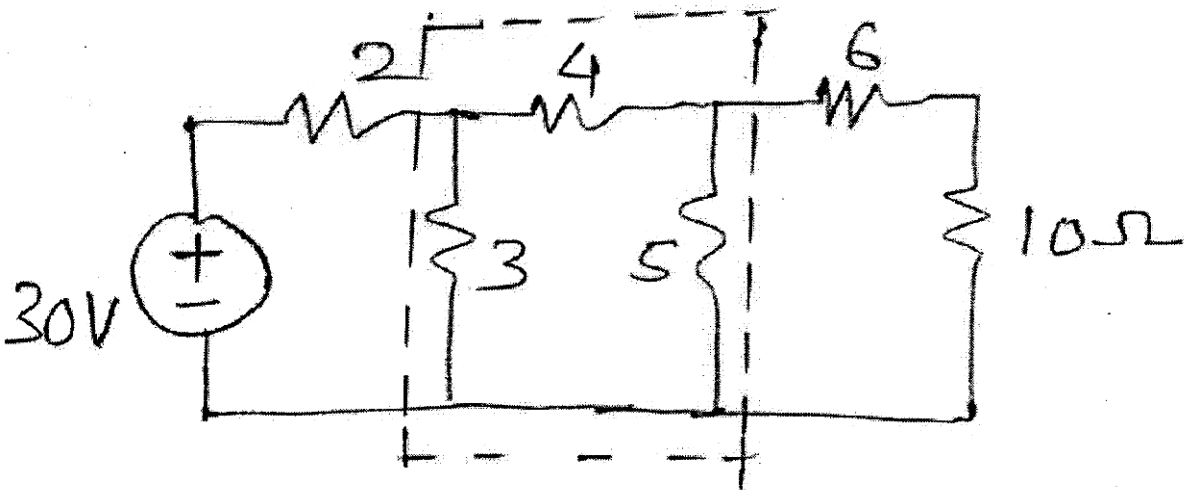

Fig. 9

6. (*a*) If a constant k high-pass filter has cut-off frequency of 13 kHz and nominal impedance of R_0 = 600 ohm, design the T and π sections of this filter. [6]

(*b*) Obtain Z parameter of network as shown in fig (10). [6]

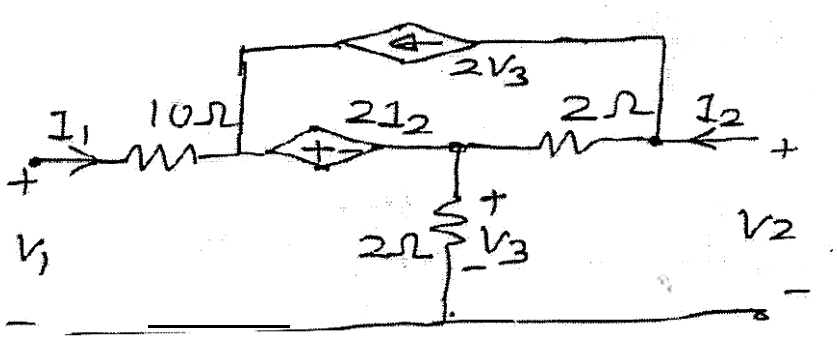

Fig. 10

7. (*a*) Find Transfer Function of network as shown in fig. (11). [6]

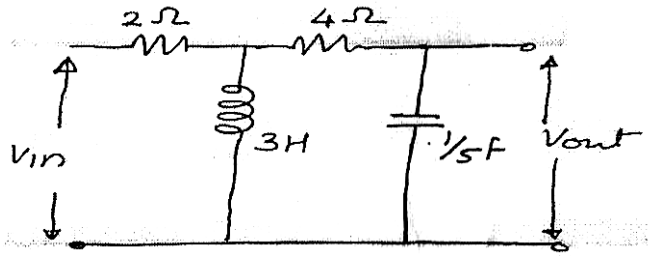

Fig. 11

(*b*) Draw the time domain wave form for various types of transfer function and comment on stability of system. [6]

8. (*a*) Find poles and zero of the impedance of the following network and plot them on the *s* – plane in fig. 12. [6]

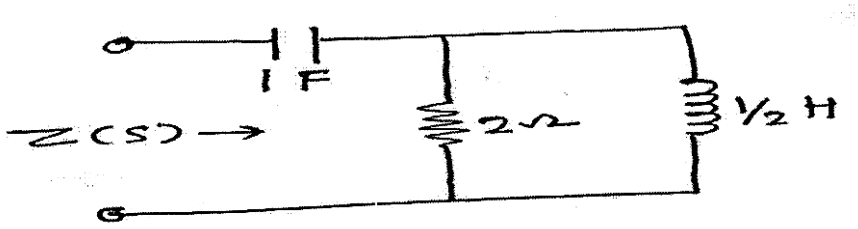

Fig. 12

(*b*) Explain parallel resonance, condition drive the formula for anti-resonant frequency. [6]