

**GANPAT UNIVERSITY**  
**B. TECH. SEMESTER III (ELECTRONICS & COMMUNICATION ENGINEERING)**  
**CBCS REGULAR EXAMINATION, NOVEMBER 2014**  
**2EC305 NETWORK ANALYSIS**

Max. Time: 3 Hrs.]

[Max. Marks: 70

Instructions:

1. Attempt all questions.
2. Answers to the two sections must be written in separate answer books.
3. Figures to the right indicate full marks.
4. Assume suitable data, if necessary.

**SECTION-I**

- Q-1 (A) Discuss about source transformation and which type of techniques using we can simplify network. 6
- (B) Find the currents through the resistor shown in the network of fig 1.1 using mesh analysis. 6

OR

- Q-1 (A) Differentiate the following term (1) lumped and distributed network (2) circuit and network (3) mesh and loop. 6
- (B) What is duality? And write down the procedure to construct the dual network of fig.1.2. 6

- Q-2 (A) Find the current and voltage drop through  $5\Omega$  resistor network shown in fig. 1.3. 6
- (B) What is importance of initial condition in network analysis? And Define time constant. 5

OR

- Q-2 (A) In the network of fig 1.4 the switch K is in position a for a long of time. At  $t=0$ , the switch is moved from a to b. Find  $V_2(t)$ . 6
- (B) Find solution of first order non-homogeneous differential equation using integrating factor and significance of that. 5

- Q-3 (A) Discuss tree voltage and cut set in tree with an example. 6
- (B) In the network of fig 1.5 the switch K is closed at  $t=0$ . obtain the general solution and the particular solution for current  $i(t)$ . 6

**SECTION-II**

- Q-4 (A) Use thevenin's theorem to find power at terminal AB of fig.2.1 6
- (B) Determine maximum amount of power that could dissipate in  $R_1$  in network shown in fig.2.2. 6

OR

- Q-4 (A) Apply the superposition theorem to find current in  $3+4j\Omega$  impedance in networks of fig.2.3. 6
- (B) Find the Norton's equivalent network across terminal AB of network shown in fig.2.4. 6

- Q-5 (A) Find the y parameter for the resistive network of fig. 2.5. 6
- (B) What are the reciprocal condition and symmetrical condition for hybrid parameter? 5

OR

- Q-5 (A) Find transmission parameter of the two network of fig.2.6. 6
- (B) What is the relationship between y parameter to T parameters? 5

- Q-6 (A) Find the Laplace transform of square shown in fig 2.7 6
- (B) Discuss different the Properties of Filter and write down use of filter. 6

fig 1.1

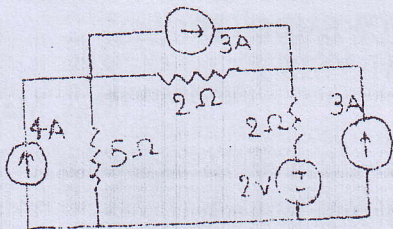


fig 1.2

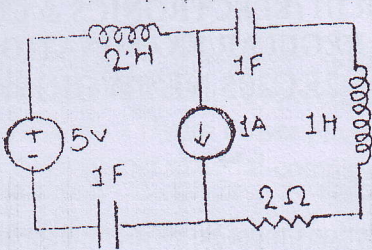


fig 1.3

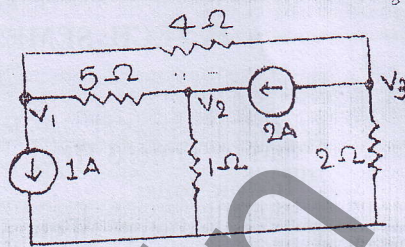


fig 1.4

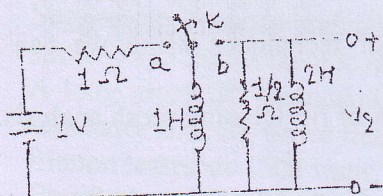


fig 1.5

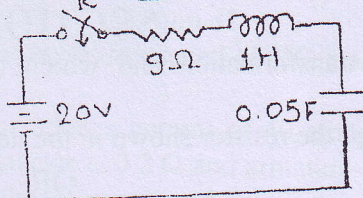


fig 2.1

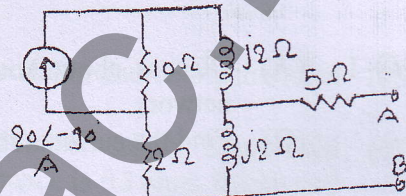


fig 2.2

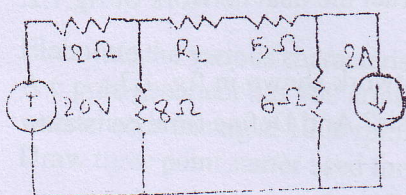


fig 2.3

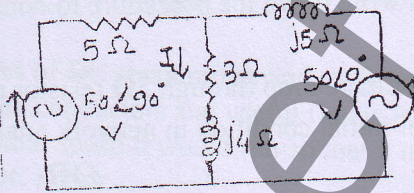


fig 2.4

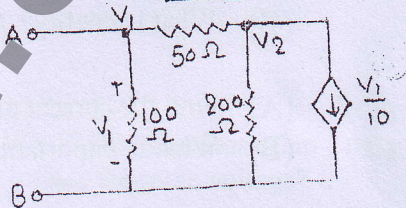


fig 2.5

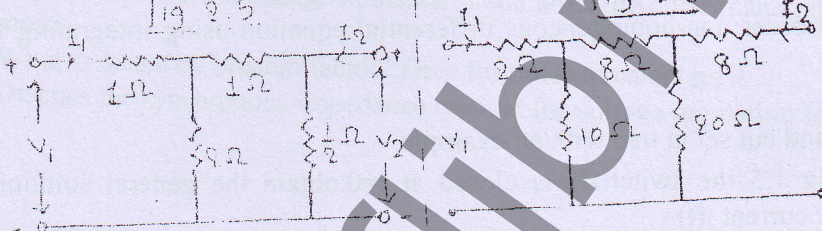


fig 2.6

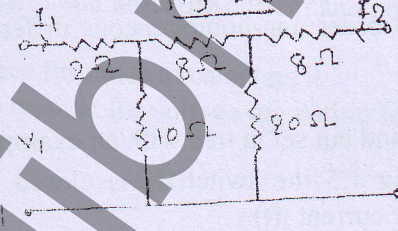
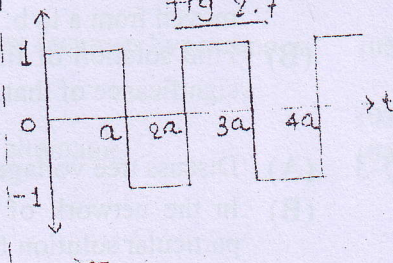


fig 2.7



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