

Roll Number: _____

Thapar University, Patiala

Department of Electrical and Instrumentation Engineering

END SEMESTER EXAMINATION

B. E. (Third Year): Semester-I (2017-2018)

Course Code: UEE503

Course Name: Network Analysis and
Synthesis

December 13, 2017

Wednesday, 14.00 - 17.00 Hrs

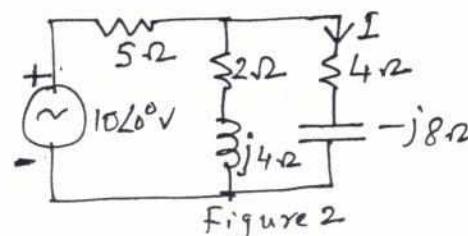
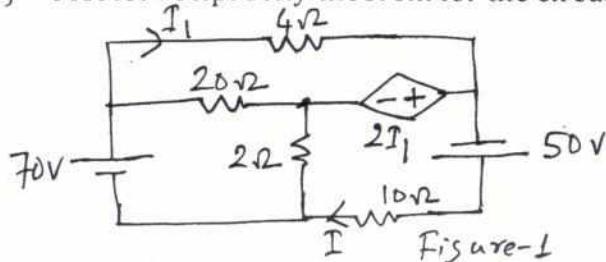
Time: 3 Hours, M. Marks: 100

Name of Faculty: S. Ghosh

Note: Attempt all questions.

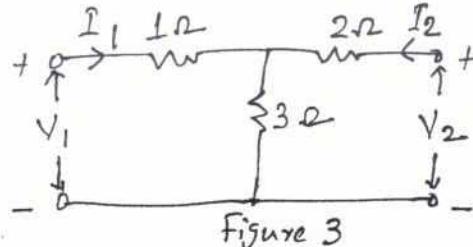
- Q1.(a)** Apply superposition theorem and determine the current I in the circuit [14] shown in Figure 1.

- (b)** Test for reciprocity theorem for the circuit shown in Figure 2. [06]



- Q2.(a)** Determine Z, Y, ABCD and h parameters of the circuit shown in Figure 3. [16]

- (b)** Develop cascade connection and determine the equivalent parameter of [04] this connection.



- Q3.(a)** Formulate input and output impedances of a two port network in terms of [12] Z, ABCD and h parameters.

- (b)** Find the condition of symmetry and reciprocity of a two port network for Z [08] and h parameters.

- Q4.** The impedance function of a two port network is $Z(s) = \frac{K(s^2 + 1)(s^2 + 9)}{s(s^2 + 4)}$. [20]

Determine the type of the function. If $Z(s) = -\frac{130}{16}$, synthesize the impedance in (a) Foster-I and Foster-II forms ; and (b) Cauer-I and Cauer-II forms.

- Q5.** The impedance of a network is $Z(s) = \frac{s(s+2)(s+5)}{(s+1)(s+4)}$. Determine the type of [20] the function. Also synthesize the impedance in (a) Foster-I and Foster-II forms; and (b) Cauer-I and Cauer-II forms.

NOTE: SEE YOUR EVALUATED ANSWER SCRIPT ON 15-12-2017 AT 5:15 PM IN D-206.