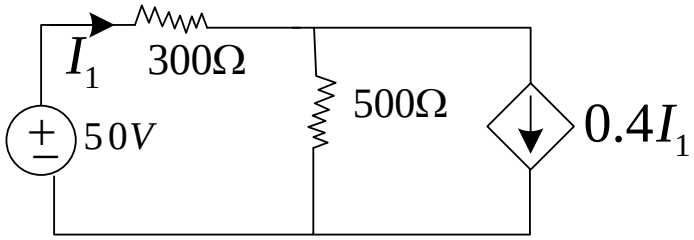
Name: **Enrolment No:**	UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

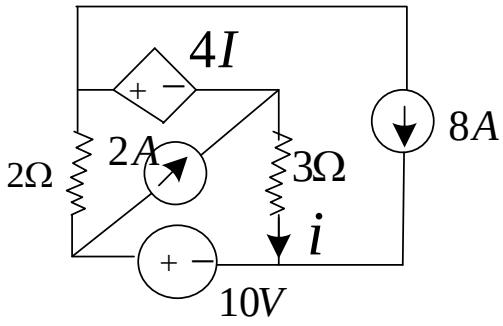
End Semester Examination, Dec 2019

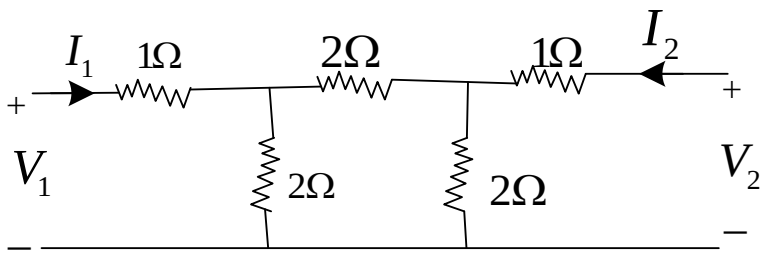
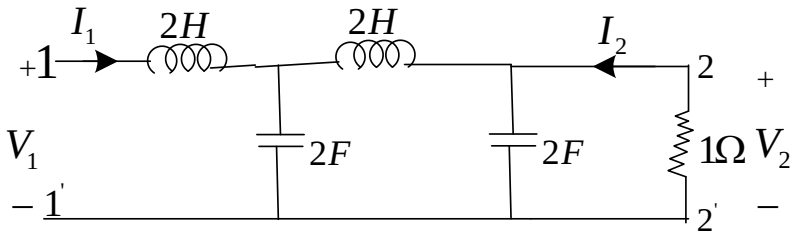
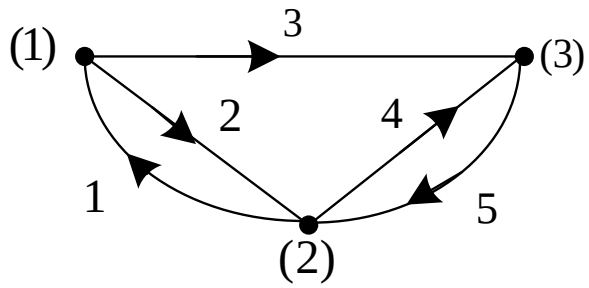
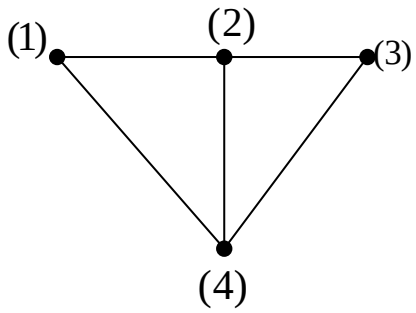
Programme Name: B. Tech-Electronics Communication Engineering **Semester : III**
Course Name : Network Analysis **Time : 03 Hrs.**
Course Code : ECEG-2020 **Max. Marks : 100**
Nos. of page(s) : 3
Instructions: Attempt all the sections.

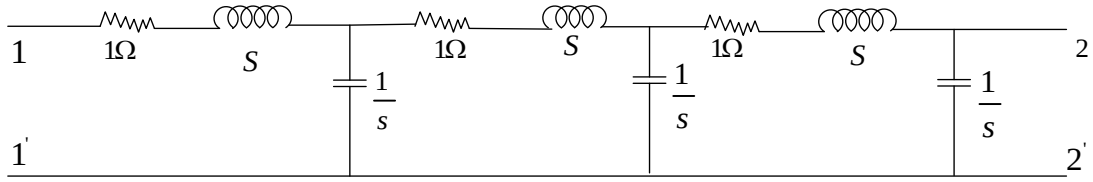
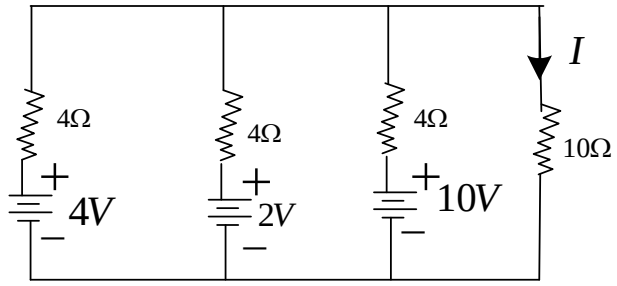
SECTION A (20 Marks)

S. No.	**Attempt all the questions.**	**Marks**	**CO**
Q 1	For the circuit use loop analysis to find I_1 and the power absorbed by the 500 Ω resistor.  **Fig. (1)**	**5**	**CO1**
Q 2	Define Y-parameters. Determine the relationship between the Z and Y parameters.	**5**	**CO2**
Q 3	Define the following terns: (i) Mesh and loop (ii) Path (iv) Planar and non-planar graph	**2+2+1**	**CO4**
Q 4	What are the positive real functions? And write its properties.	**5**	**CO3**

SECTION B (40 Marks)

	Attempt all the questions.		
Q 5	Find the current in the circuit shown in Fig (2). Using the superposition theorem.  **Fig. (2)**	**10**	**CO1**

Q 6	For the network shown in Fig. (3) determine the ABCD parameters  **Fig. (3)**	**10**	**CO2**
Q 7	Find the transfer ratio $\left(\frac{V_2}{V_1}\right)$ of the network shown in Fig. (4),  **Fig. (4)**	**10**	**CO3**
Q 8	**Attempt both the parts:** **(a)** In the tree link graph of Fig. (5), develop the fundamental cut-set matrix and equilibrium equations using nodal analysis.  **Fig. (5)** **(b)** Figure (6) represents a graph of a network. Show the total number of tree, twigs and links.  **Fig. (6)**	**10**	**CO4**

SECTION-C (40 Marks)			
Q 9	**Attempt both the parts:** **(A)** Find the open circuit driving point impedance at terminals 1-1/ of the ladder work shown in Figure (7).  **Fig. (7)** **(B)** Determine the load current using Millman's theorem. Network shown in Fig. (8)  **Fig. (8)**	**10+10**	**CO3, CO1**
Q 10	An impedance function is given by $Z(S) = \frac{S(S+2)(S+5)}{(S+1)(S+4)}$ Find the R-L representation of (a) Foster- I and II forms (b) Cauer –I and II forms	**20**	**CO4**