NATIONAL INSTITUTE OF TECHNOLOGY, KURUKSHETRA
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
SESSIONAL-II
CIRCUIT THEORY (ECPC-101)

TIME: 45 MINS MAX. MARKS: 20

1. The ABCD parameters of the two port network given in Fig. 1 are $\begin{bmatrix} 4 & 20 \\ 0.1 & 2 \end{bmatrix}$. Find the value of load resistance R_L for maximum power transfer and the maximum power transferred to the variable load. 5 Marks

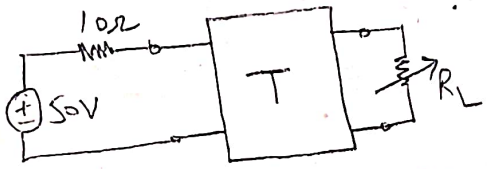

Fig. 1

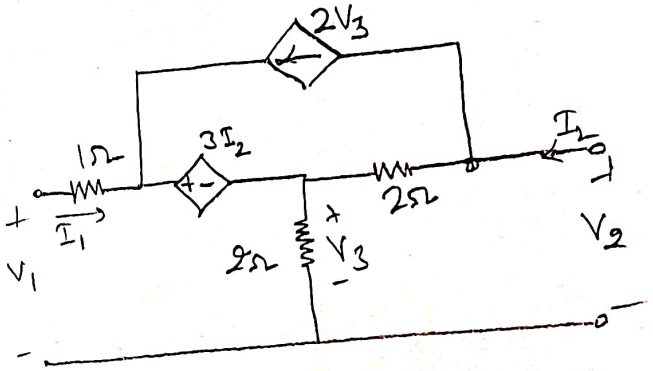

Fig. 2

2. In Fig. 2, find the z parameters. 4 Marks
3. Find the Laplace transform of the periodic function given in Fig 3. 4 Marks

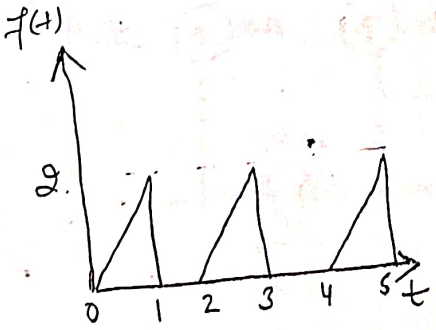

Fig. 3

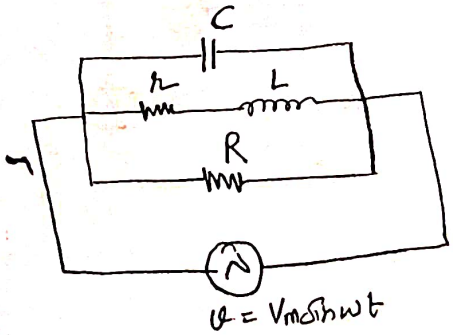

Fig. 4

4. Derive the expression for resonant frequency for the parallel circuit shown in Fig. 4. 4 Marks

5. A series RLC circuit has a quality factor of 5 at 50 rad/sec. The current flowing through the circuit at resonance is 10A and the supply voltage is 100V. Find the circuit elements 3 Marks