



Code No. D-2360/N/AICTE

### FACULTY OF ENGINEERING

B.E. (ECE) III - Semester (AICTE) (Main) Examination, March / April 2022

Subject: Network Theory

Time: 3 Hours

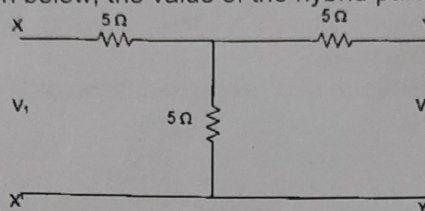
Max. Marks: 70

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each question carries 14 marks.

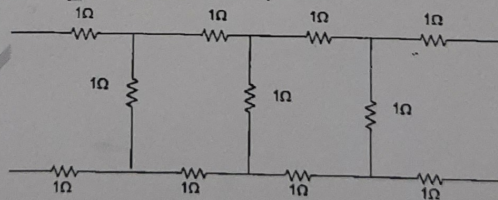
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.

(iii) Missing data, if any, may be suitably assumed.

- 1 (a) In the circuit given below, the value of the hybrid parameter  $h_{12}$  is \_\_\_\_\_



- (b) Define Image Transfer Constant, Iterative Transfer Constant of the asymmetrical network.
- (c) Show that for a filter  $Z_{OT} XZ_{O\pi} = Z_1 Z_2$ .
- (d) Explain how band pass filter can be designed using LPF and HPF.
- (e) Design a symmetrical  $\pi$  attenuator with a  $R_0 = 600\Omega$  and attenuation of 60 dB.
- (f) Test whether the polynomial  $P(S) = 2S^3 + 4S^2 + 5S + 2$  is Hurwitz.
- (g) List the properties of positive Real function.
- 2 (a) For the given circuit, find Z-Parameters
- (b) Convert two port Y-parameters to h-parameters.



- 3 (a) What are the Electrical Properties of Symmetrical and asymmetrical networks?
- (b) Draw T and  $\pi$  Networks Derive relation between T and  $\pi$  Networks.
- 4 (a) Design a composite low-pass filter with a cut-off frequency at 2 KHz and impedance of 600  $\Omega$ . There should be a frequency of infinite attenuation at 2.5 KHz.
- (b) Design a constant K high pass T section filter for  $R_0 = 600\Omega$  and  $f_c = 1\text{KHz}$ .