Prof. G. Singh

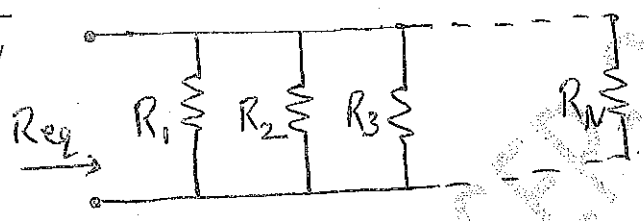
JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST 1 EXAMINATION - September 2017
B.Tech I[st] Semester (ECE, CSE, IT & CE)

COURSE CODE: **10B11EC111** MAX. MARKS: 15
COURSE NAME: **Electrical Circuit Analysis**
COURSE CREDITS: 4 MAX. TIME: 1HR

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

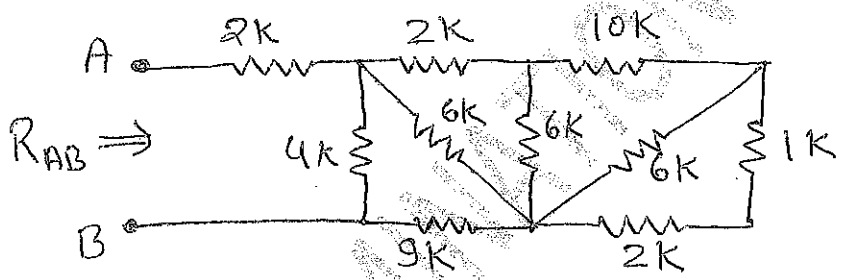
Q1. **(a)** Prove that the equivalent resistance of N resistors connected in parallel is give by

$$\frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + \ldots + \frac{1}{R_N}$$



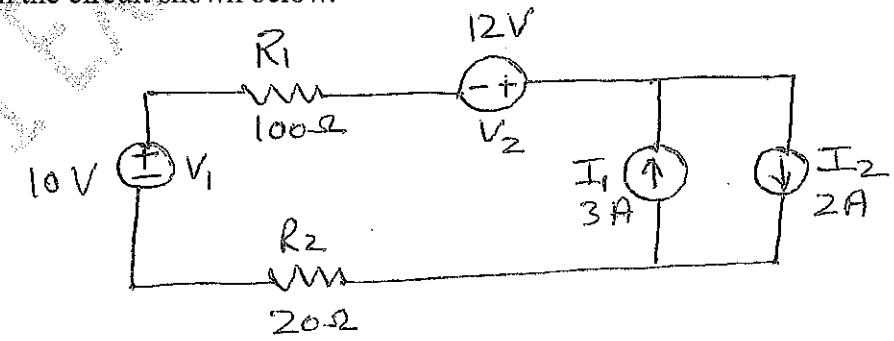
(2)

(b) Determine the equivalent resistance between terminals A-B in the network shown below. **(3)**



Q2. **(a)** Define open circuit and short circuit. What is the resistance for each? **(2)**

(b) Find the power consumed or delivered by the Voltage sources V_1 & V_2, Current sources I_1 & I_2 and Resistors R_1 & R_2 in the circuit shown below. **(3)**



Q3. **(a)** Define Node. What is Kirchhoff's Current Law? **(2)**

(b) Using Nodal analysis compute the voltage across each current source. **(3)**