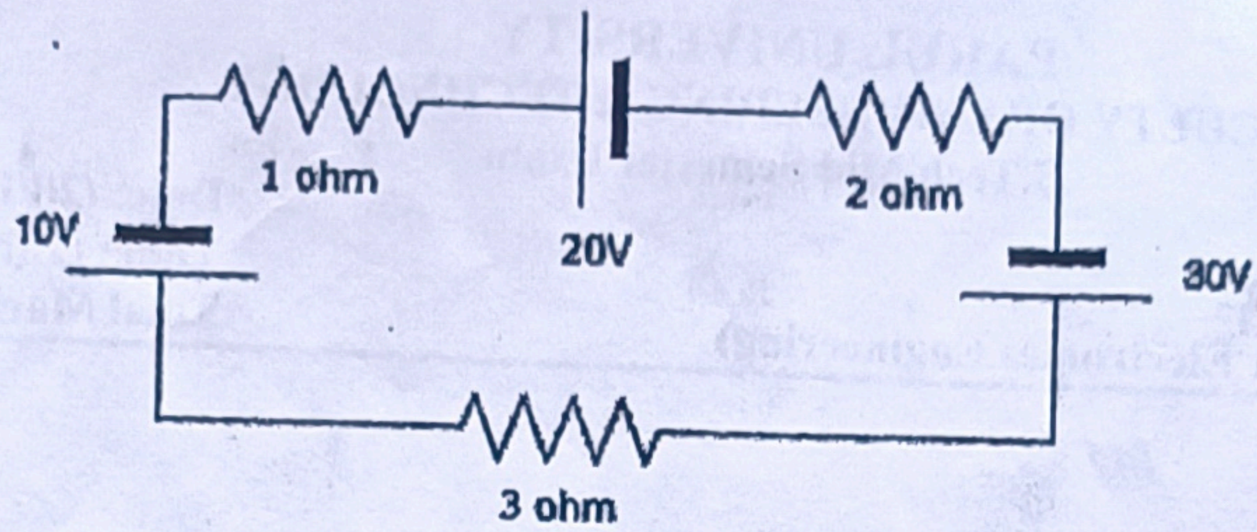
Enrollment No: 234GOS1722

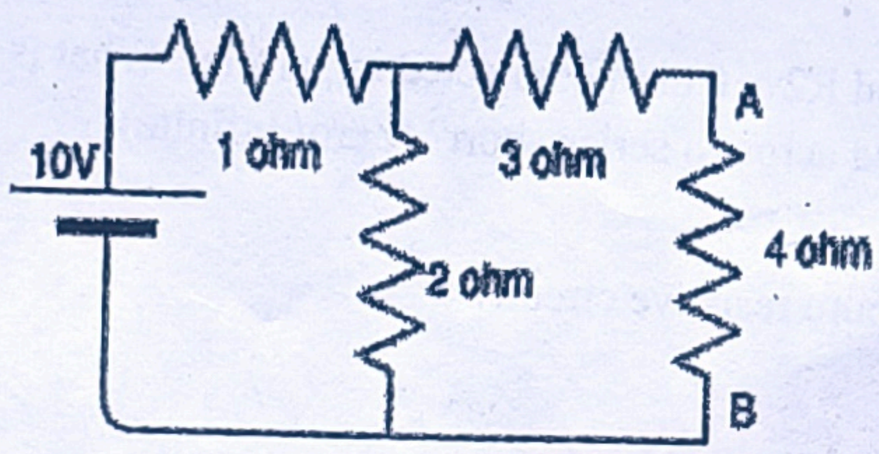
PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech Mid Semester Exam

Semester: 1st **Date: (20/11/2023)**
Subject Code: (303106103) **Time: (1hr: 30min)**
Subject Name: (Electrical & Electronics Engineering) **Total Marks: 40**

Sr. No.		Marks
Q.1	**(A) One-line Questions**	
	(i) Define Active network.	
	(ii) Two resistors R1=10 ohm and R2=10 ohm connected in parallel. What is Req?	
	(iii) What is the voltage measured across a series short? (Zero/ Infinite)	
	(iv) Norton resistance is found by? –	
	(v) What is the power factor of pure resistive circuit?	05
	(B) Five Fill in the blanks	
	(i) In a series circuit, the total resistance is equal to:	
	a) The sum of the individual resistances	
	b) The reciprocal of the sum of the individual resistances	
	c) The square of the individual resistances	
	d) Half of the sum of the individual resistances	
	(ii) KCL is based on the principle of:	
	a) Conservation of charge b) Conservation of energy	
	c) Conservation of voltage d) Conservation of power	
	(iii) If three resistors with resistances of 4 ohms, 6 ohms, and 8 ohms are connected in series, what is the total resistance?	
	a) 2 ohms b) 9 ohms c) 18 ohms d) 12 ohms	
	(iv) Capacitors store electrical energy in the form of:	
	a) Magnetic fields b) Electric fields c) Current d) Resistance	
	(v) Which type of source is typically used to represent a battery in a circuit diagram?	
	a) Voltage source b) Current source c) Resistance source	
	d) Power source	12
Q.2	Attempt any four (Short Questions)	
	(1) Explain mesh analysis with suitable example.	
	(2) Define following terms: - a) Passive element b) Non-linear network c) Bilateral network.	
	(3) Write the statement of Superposition theorem.	
	(4) What is the current in the circuit?	



(5) Calculate the Thevenin resistance across the terminal AB for the following circuit.



Q.3 Attempt any two questions 08

(1) Explain Kirchhoff's voltage law & Kirchhoff's current law with suitable example.

(2) Explain the star to delta transformation with suitable example

(3) Define the following:

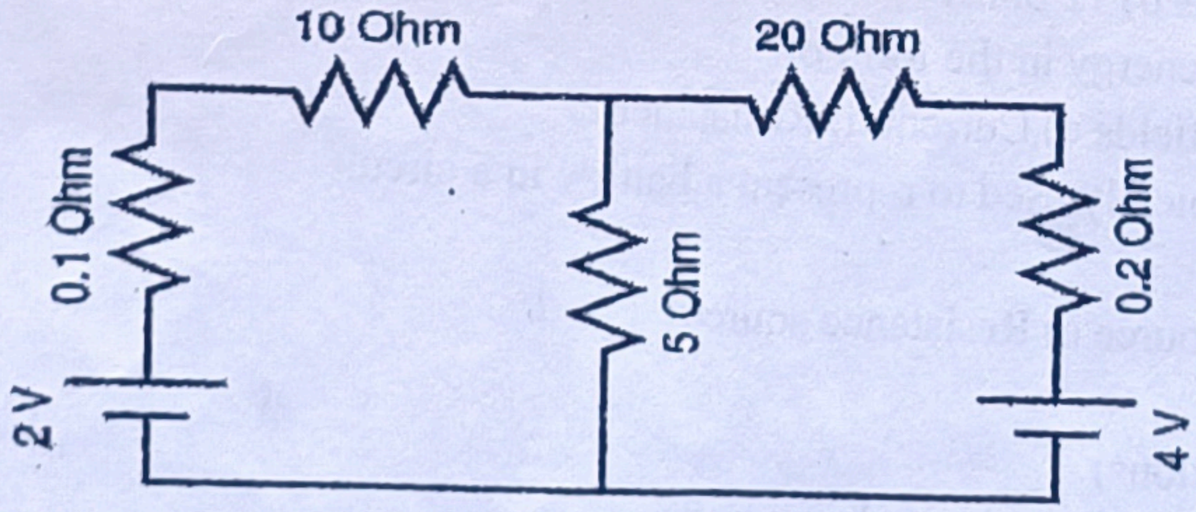
a) Frequency

b) Time period

c) Crest Factor

d) Cycle

Q.4 (A) Find current flowing through 5 Ω using superposition theorem. 05



(B) Explain the procedure of Thevenin's theorem with suitable example. 05

OR

(B) Explain the procedure of Norton's theorem with suitable example. 05