

Block NO- B-103

ABSENT - serial NO ISE

C2

Total = 29 + 5 + 7 = 46  
+ 5SOMAIYA  
VIDYAVIHAR UNIVERSITY

29 Marks

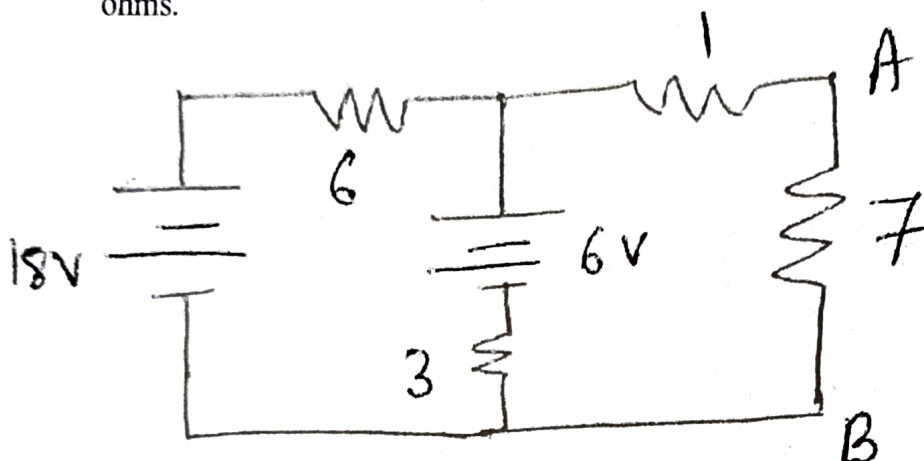
Semester: October 2022 – January 2023		
Maximum Marks: 30	Examination: In-Semester Examination	Duration: 1 Hr 15 Min
Programme code: 01, 04	Class: FY	Semester: I (SVU 2020)
Programme: B.Tech		
Name of the Constituent College: K. J. Somaiya College of Engineering		Name of the department: ALL
Course Code: 116U06C107	Name of the Course: Elements of Electrical and Electronics Engineering	

Question No.		Max. Marks
Q1	<p>Calculate current flowing through <math>13\Omega</math> resistor in the following electrical network using <b>Mesh Analysis</b></p> <p style="text-align: center;"><b>OR</b></p> <p>Calculate current flowing through <math>8\Omega</math> resistor in the given following electrical network using <b>Nodal Analysis</b>.</p>	10

Q2

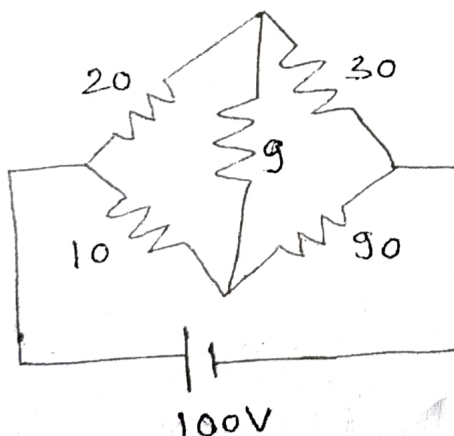
- A) Draw Thevenin's equivalent circuit between terminals A & B. Calculate current through  $7\ \Omega$  resistance. All resistance values are in ohms.

05



- B) Calculate total current delivered by 100V DC supply in following circuit. All resistance values are in ohms.

05



Q3

- A) Draw circuit diagrams and V-I characteristics using Zener diode when: i) Zener diode is forward biased ii) Zener diode is reverse biased. **Label key parameters of characteristics.**
- B) Draw a circuit diagram of full wave rectifier using 2 diodes. Draw waveform of output voltage across load resistance. Write equations of  $V_{dc}/I_{dc}$  and  $V_{rms}/I_{rms}$  of the load resistance.

06

04

OR

With the help of CB configuration or construction diagram of p-n-p bipolar junction transistor (BJT), explain the working of CB- BJT when emitter base junction is forward bias and base collector junction is reverse biased. **Show emitter, base and collector currents in diagram. Define  $\alpha$ , current gain of CB configuration.**

10