BRAC UNIVERSITY
Inspiring Excellence

Brac University
Semester: Fall 2023
Course Code: CSE250
Circuits And Electronics
Section: 18

Set
A

Assessment: *Class Assignment 1*
Duration: 1 hour 20 minutes
Date: September 28, 2023
Full Marks: 10

✓ No washroom breaks. Phones must be turned off. Using/carrying any notes during the exam is not allowed.
✓ All **4 questions** are compulsory. Marks allotted for each question are mentioned beside each question.
✓ Write your answers inside the indicated boxes (where applicable). If you run out of room, continue on the back page.
✓ Symbols have their usual meanings.

Student ID / Answers (1-10) / Answers (11-20) / Answers (21-30) / Set Identifier

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◇ Question 1 of 4   *[CO1] [2 marks]*

Which of the following circuits is/are impossible (violates Kirchhoff's laws)?

5 A
2 A
Circuit 1

5 V   2 V
Circuit 2

5 A   2 A
Circuit 3

(A) Circuit 3   (B) Circuit 1 & 3   (C) Circuit 2
(D) **Circuit 1**   (E) None of the above

◇ Question 2 of 4   *[CO3] [2 marks]*

$500\,\Omega$ $3\,\text{mA}$ $3\,\text{k}\Omega$ $6\,\text{k}\Omega$
v_x
$5\,\text{V}$ $5\,\text{k}\Omega$ v_y $1\,\text{mA}$ v_z
i_x
$1.5\,\text{k}\Omega$ $4\,\text{k}\Omega$

(A) c
(B) **a**
(C) b

◇ **Question 3 of 4**   *[CO3] [5 marks]*

Which of the following statements is true?
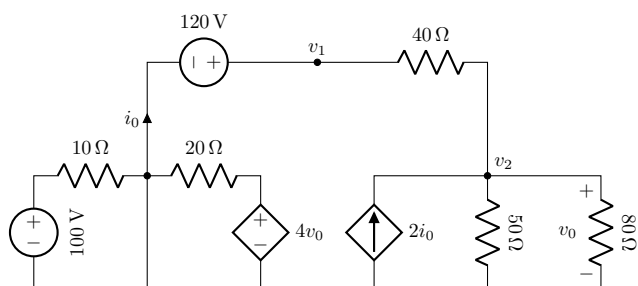
(A) $R_{ab} = 56\,\text{k}\Omega, R_{bc} = 26\,\text{k}\Omega, R_{ca} = 54\,\text{k}\Omega$

(B) $R_{ab} = 105\,\text{k}\Omega, R_{bc} = 30\,\text{k}\Omega, R_{ca} = 90\,\text{k}\Omega$

(C) $R_{ab} = 56\,\Omega, R_{bc} = 26\,\Omega, R_{ca} = 54\,\Omega$

(D) $R_{ab} = R_{bc} = R_{ca} = 18.529\,\text{k}\Omega$

(E) None of the above

◇ **Question 4 of 4**   *[CO1] [1 mark]*

How many nodes are in this circuit?

(A) 7   (B) 3   (C) **5**   (D) 6   (E) 4

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◇ **Question 1 of 4**   *[CO1] [1 mark]*

How many nodes are in this circuit?

Ⓐ 4   Ⓑ 7   **Ⓒ 5**   Ⓓ 6   Ⓔ 3

◇ **Question 2 of 4**   *[CO3] [5 marks]*

Which of the following statements is true?

Ⓐ $R_{ab} = 91\,\text{k}\Omega, R_{bc} = 26\,\text{k}\Omega, R_{ca} = 52\,\text{k}\Omega$

Ⓑ $R_{ab} = 42\,\Omega, R_{bc} = 22\,\Omega, R_{ca} = 36\,\Omega$

Ⓒ $R_{ab} = 42\,\text{k}\Omega, R_{bc} = 22\,\text{k}\Omega, R_{ca} = 36\,\text{k}\Omega$

Ⓓ $R_{ab} = R_{bc} = R_{ca} = 14.56\,\text{k}\Omega$

Ⓔ None of the above

◇ **Question 3 of 4** *[CO3] [2 marks]*

(A) **a**

(B) c

(C) b

◇ **Question 4 of 4** *[CO1] [2 marks]*

Which of the following circuits is/are impossible (violates Kirchhoff's laws)?

(A) **Circuit 1**   (B) Circuit 1 & 3   (C) Circuit 3

(D) Circuit 2   (E) None of the above

ID: Name:

BRAC UNIVERSITY

Brac University   Set

Semester: Fall 2023   **C**   Inspiring Excellence
Course Code: CSE250   Assessment: *Class Assignment 1*
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◇ **Question 1 of 4   [CO3] [5 marks]**
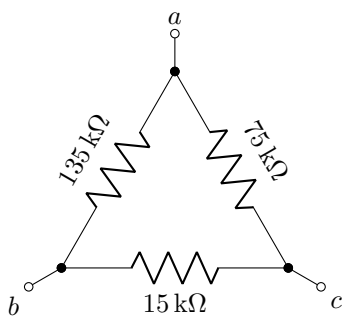
Which of the following statements is true?

(A) $R_{ab} = 54\,\Omega, R_{bc} = 14\,\Omega, R_{ca} = 50\,\Omega$

(B) $R_{ab} = R_{bc} = R_{ca} = 11.441\,\text{k}\Omega$

(C) $R_{ab} = 54\,\text{k}\Omega, R_{bc} = 14\,\text{k}\Omega, R_{ca} = 50\,\text{k}\Omega$

(D) $R_{ab} = 135\,\text{k}\Omega, R_{bc} = 15\,\text{k}\Omega, R_{ca} = 75\,\text{k}\Omega$

(E) None of the above

◇ **Question 2 of 4   [CO1] [2 marks]**

Which of the following circuits is/are impossible (violates Kirchhoff's laws)?
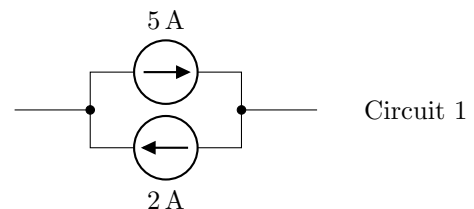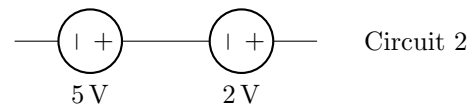
(A) Circuit 3   (B) Circuit 1 & 3   (C) Circuit 2

(D) **Circuit 1**   (E) None of the above

◇ **Question 3 of 4**   *[CO3] [2 marks]*

What's the relation between v_1, v_2 and i?

(A) $-16 + 16i - 7 + 9i = 0$

(B) $-16 - 16i - 7 + 9i = 0$

(C) $\mathbf{-16 + 16i + 7 + 9i = 0}$

(D) $-16 - 16i + 7 + 9i = 0$

(E) None of the above

◇ **Question 4 of 4**   *[CO1] [1 mark]*

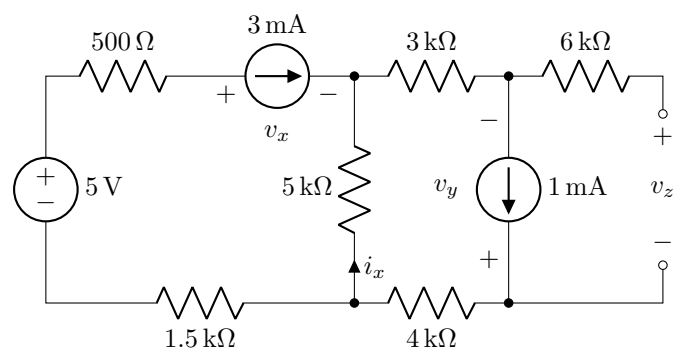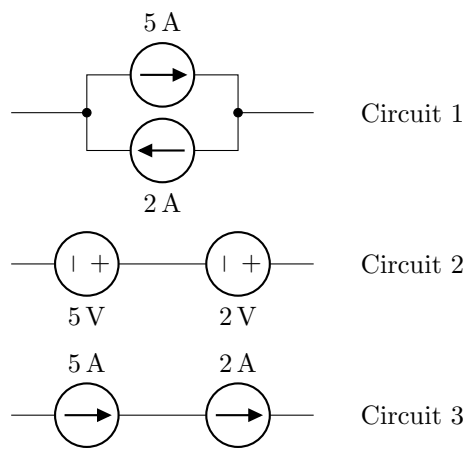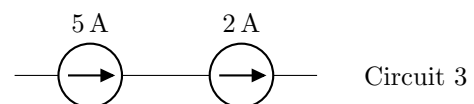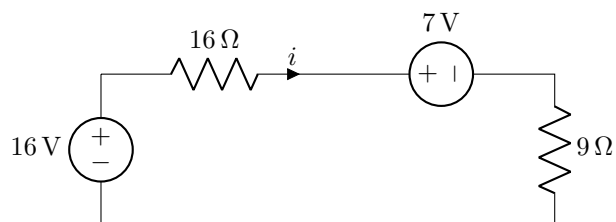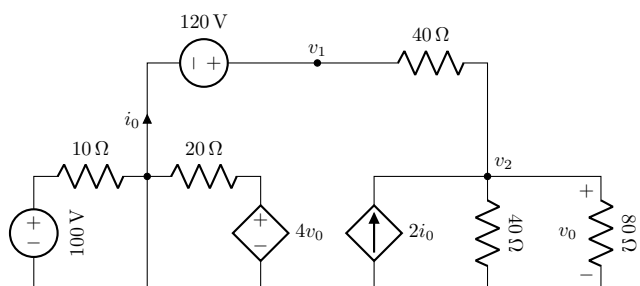How many nodes are in this circuit?

(A) 3   (B) 7   (C) 4   (D) 6   (**E**) **5**

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◇ **Question 1 of 4**   *[CO1] [1 mark]*

How many nodes are in this circuit?

(A) 7   (B) 3   (C) 4   (D) 6   **(E) 5**

◇ **Question 2 of 4**   *[CO3] [2 marks]*

What's the relation between v_1, v_2 and i?

(A) $-18 + 16i - 5 + 5i = 0$

(B) $-18 + 16i + 5 + 5i = 0$

(C) $-18 - 16i + 5 + 5i = 0$

(D) $-18 - 16i - 5 + 5i = 0$

(E) None of the above

◇ **Question 3 of 4**   *[CO1] [2 marks]*
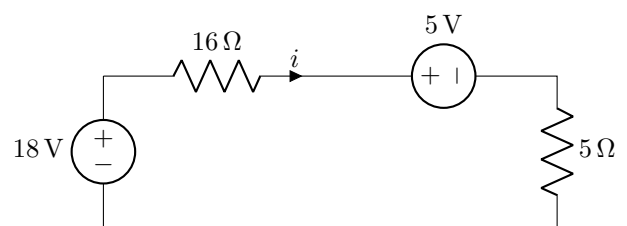
Which of the following circuits is/are impossible (violates Kirchhoff's laws)?

5 A

Circuit 1

2 A

| + | +   Circuit 2

5 V   2 V

5 A   2 A

Circuit 3

(A) **Circuit 1**   (B) Circuit 1 & 3   (C) Circuit 3

(D) Circuit 2   (E) None of the above

◇ **Question 4 of 4**   *[CO3] [5 marks]*

a

$112\,k\Omega$ $96\,k\Omega$

b $48\,k\Omega$ c

Which of the following statements is true?

(A) $R_{ab} = 63\,\Omega, R_{bc} = 39\,\Omega, R_{ca} = 60\,\Omega$

(B) $R_{ab} = 112\,k\Omega, R_{bc} = 48\,k\Omega, R_{ca} = 96\,k\Omega$

(C) $\boldsymbol{R_{ab} = 63\,k\Omega, R_{bc} = 39\,k\Omega, R_{ca} = 60\,k\Omega}$

(D) $R_{ab} = R_{bc} = R_{ca} = 24.889\,k\Omega$

(E) None of the above

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Set **E**

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Assessment: *Class Assignment 1*
Duration: 1 hour 20 minutes
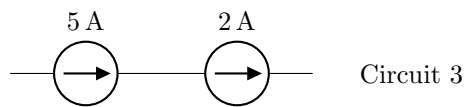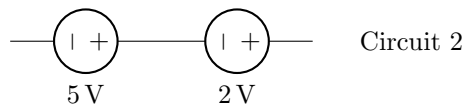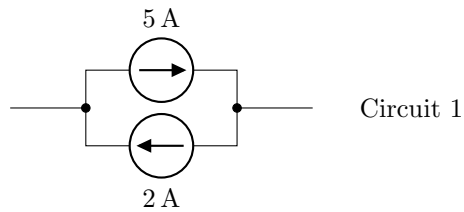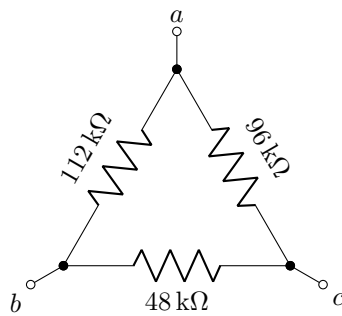Date: September 28, 2023
Full Marks: 10

◇ Question 1 of 4   *[CO3] [2 marks]*

What's the relation between v_1, v_2 and i?
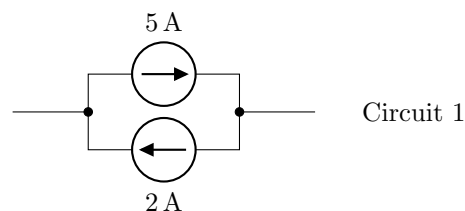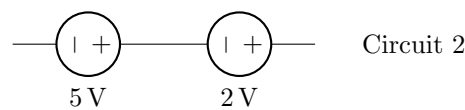
- (A) $-18 + 13i - 6 + 9i = 0$
- (B) $-18 - 13i - 6 + 9i = 0$
- **(C) $-18 + 13i + 6 + 9i = 0$**
- (D) $-18 - 13i + 6 + 9i = 0$
- (E) None of the above

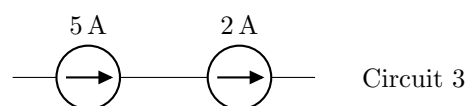## ◇ Question 2 of 4   *[CO1] [2 marks]*

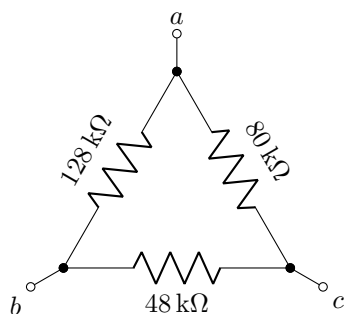Which of the following circuits is/are impossible (violates Kirchhoff's laws)?

- (A) Circuit 3
- (B) Circuit 2
- (C) Circuit 1 & 3
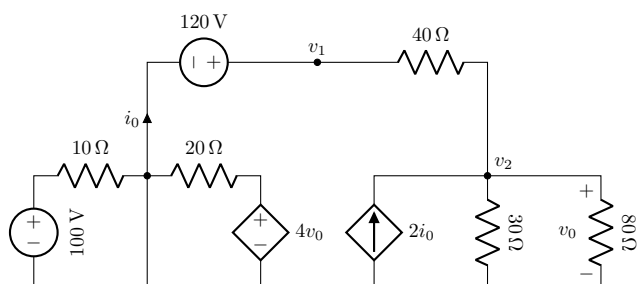- **(D) Circuit 1**
- (E) None of the above

◇ Question 3 of 4   *[CO3] [5 marks]*

Which of the following statements is true?

(A) $R_{ab} = 64\,\text{k}\Omega, R_{bc} = 39\,\text{k}\Omega, R_{ca} = 55\,\text{k}\Omega$

(B) $R_{ab} = R_{bc} = R_{ca} = 24.304\,\text{k}\Omega$

(C) $R_{ab} = 128\,\text{k}\Omega, R_{bc} = 48\,\text{k}\Omega, R_{ca} = 80\,\text{k}\Omega$

(D) $R_{ab} = 64\,\Omega, R_{bc} = 39\,\Omega, R_{ca} = 55\,\Omega$

(E) None of the above

◇ Question 4 of 4   *[CO1] [1 mark]*

How many nodes are in this circuit?

(A) 3   (B) 7   (C) **5**   (D) 6   (E) 4

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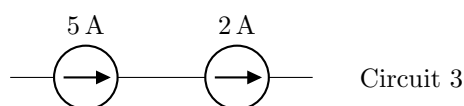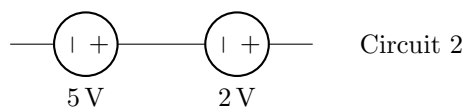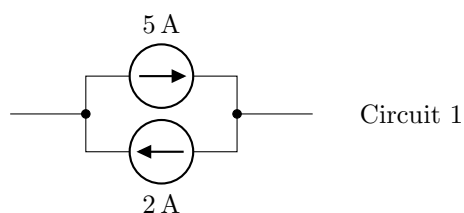Full Marks: 10

◇ **Question 1 of 4**   *[CO1] [2 marks]*

Which of the following circuits is/are impossible (violates Kirchhoff's laws)?

(A) Circuit 2   (B) **Circuit 1**   (C) Circuit 3
(D) Circuit 1 & 3   (E) None of the above

◇ **Question 2 of 4**   *[CO3] [2 marks]*
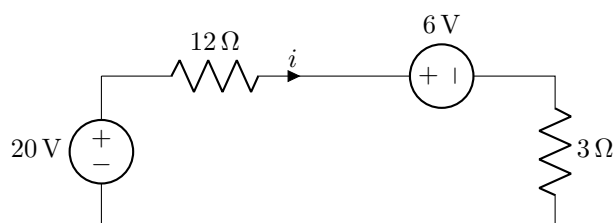
What's the relation between v_1, v_2 and i?

(A) $-20 - 12i - 6 + 3i = 0$

(B) $-20 + 12i - 6 + 3i = 0$

(C) $\mathbf{-20 + 12i + 6 + 3i = 0}$

(D) $-20 - 12i + 6 + 3i = 0$

(E) None of the above

◇ Question 3 of 4   *[CO1] [1 mark]*

How many nodes are in this circuit?

(A) 7   (**B**) **5**   (C) 4   (D) 6   (E) 3

◇ Question 4 of 4   *[CO3] [5 marks]*
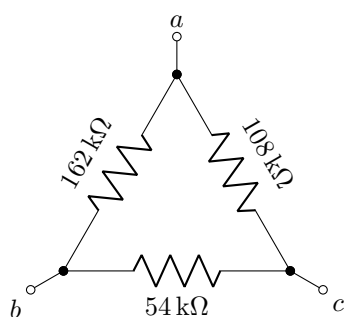
Which of the following statements is true?

(A) $R_{ab} = 162\,\text{k}\Omega, R_{bc} = 54\,\text{k}\Omega, R_{ca} = 108\,\text{k}\Omega$

(**B**) $\boldsymbol{R_{ab} = 81\,\text{k}\Omega, R_{bc} = 45\,\text{k}\Omega, R_{ca} = 72\,\text{k}\Omega}$

(C) $R_{ab} = 81\,\Omega, R_{bc} = 45\,\Omega, R_{ca} = 72\,\Omega$

(D) $R_{ab} = R_{bc} = R_{ca} = 29.455\,\text{k}\Omega$

(E) None of the above

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◇ **Question 1 of 4** **[CO1] [1 mark]**

How many nodes are in this circuit?

(A) 4 (B) 7 (C) **5** (D) 6 (E) 3

◇ **Question 2 of 4** **[CO1] [2 marks]**

Which of the following circuits is/are impossible (violates Kirchhoff's laws)?
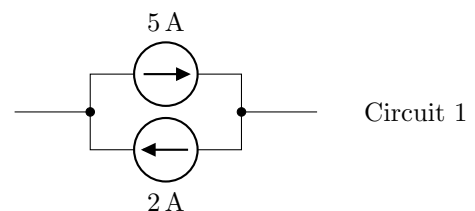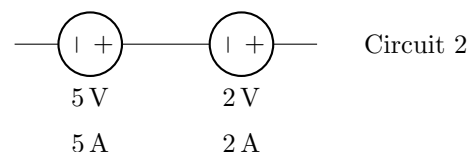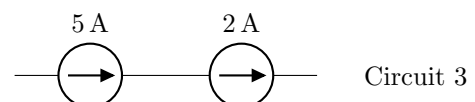
(A) Circuit 3 (B) **Circuit 1** (C) Circuit 1 & 3
(D) Circuit 2 (E) None of the above

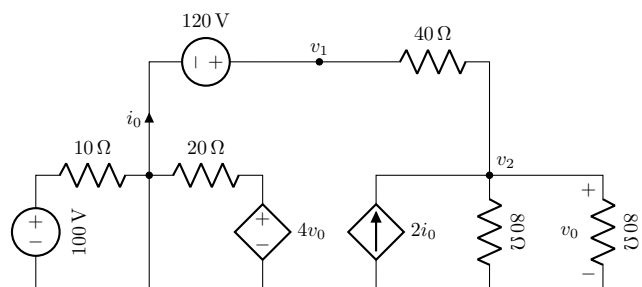◇ **Question 3 of 4** *[CO3] [5 marks]*

Which of the following statements is true?

(A) $R_{ab} = 40\,\Omega, R_{bc} = 12\,\Omega, R_{ca} = 36\,\Omega$

(B) $\boldsymbol{R_{ab} = 40\,\text{k}\Omega, R_{bc} = 12\,\text{k}\Omega, R_{ca} = 36\,\text{k}\Omega}$

(C) $R_{ab} = 104\,\text{k}\Omega, R_{bc} = 13\,\text{k}\Omega, R_{ca} = 52\,\text{k}\Omega$

(D) $R_{ab} = R_{bc} = R_{ca} = 9.455\,\text{k}\Omega$

(E) None of the above

◇ **Question 4 of 4** *[CO3] [2 marks]*
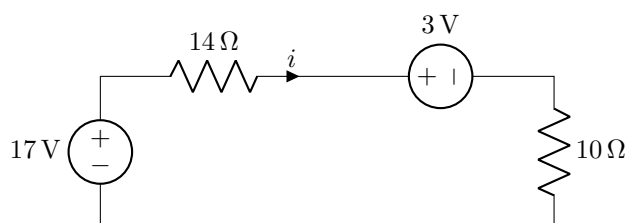
What's the relation between v_1, v_2 and i?

(A) $-17 - 14i - 3 + 10i = 0$

(B) $\boldsymbol{-17 + 14i + 3 + 10i = 0}$

(C) $-17 - 14i + 3 + 10i = 0$

(D) $-17 + 14i - 3 + 10i = 0$

(E) None of the above

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Answers (1-10)
Answers (11-20)
Answers (21-30)

Set Identifier
§ ● ● ● ● ○ ● ● ●

◇ **Question 1 of 4   [CO1] [2 marks]**

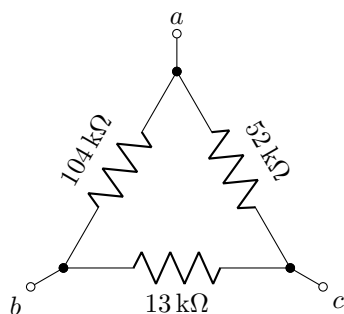Which of the following circuits is/are impossible (violates Kirchhoff's laws)?

5 A

Circuit 1

2 A

5 V   2 V

Circuit 2

5 A   2 A

Circuit 3

(A) Circuit 1 & 3   (B) Circuit 3   (C) **Circuit 1**

(D) Circuit 2   (E) None of the above

◇ **Question 2 of 4   [CO3] [5 marks]**

a

153 kΩ   102 kΩ

b   34 kΩ   c

Which of the following statements is true?

(A) $R_{ab} = R_{bc} = R_{ca} = 21.857\,\text{k}\Omega$

(B) $R_{ab} = 72\,\Omega, R_{bc} = 30\,\Omega, R_{ca} = 66\,\Omega$

(C) $R_{ab} = 153\,\text{k}\Omega, R_{bc} = 34\,\text{k}\Omega, R_{ca} = 102\,\text{k}\Omega$

(D) $\boldsymbol{R_{ab} = 72\,\text{k}\Omega, R_{bc} = 30\,\text{k}\Omega, R_{ca} = 66\,\text{k}\Omega}$

(E) None of the above

◇ **Question 3 of 4**   *[CO3] [2 marks]*
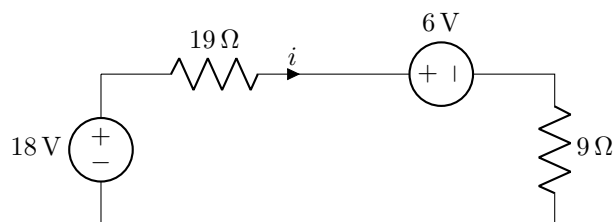
What's the relation between v_1, v_2 and i?

(A) $-18 + 19i - 6 + 9i = 0$

(B) $-18 - 19i - 6 + 9i = 0$

(C) $\mathbf{-18 + 19i + 6 + 9i = 0}$

(D) $-18 - 19i + 6 + 9i = 0$

(E)   None of the above

◇ **Question 4 of 4**   *[CO1] [1 mark]*
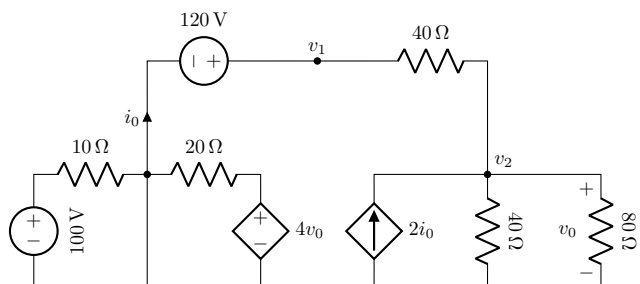
How many nodes are in this circuit?

(A) 6   (B) 7   (C) **5**   (D) 3   (E) 4

ID:	Name:

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Brac University
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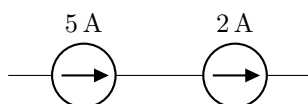

◇ **Question 1 of 4   [CO1] [2 marks]**

Which of the following circuits is/are impossible (violates Kirchhoff's laws)?

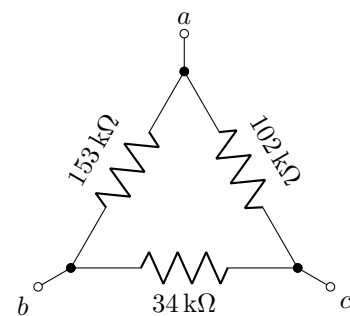(A) Circuit 2   (B) Circuit 3   (C) Circuit 1 & 3
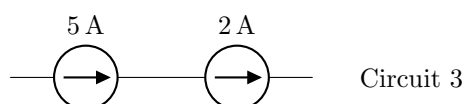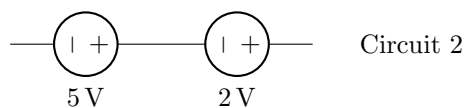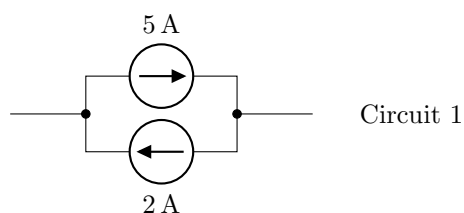(D) **Circuit 1**   (E) None of the above

◇ **Question 2 of 4   [CO3] [5 marks]**

Which of the following statements is true?

(A) $R_{ab} = 42\,\mathrm{k\Omega}, R_{bc} = 22\,\mathrm{k\Omega}, R_{ca} = 36\,\mathrm{k\Omega}$

(B) $R_{ab} = 42\,\Omega, R_{bc} = 22\,\Omega, R_{ca} = 36\,\Omega$

(C) $R_{ab} = 91\,\mathrm{k\Omega}, R_{bc} = 26\,\mathrm{k\Omega}, R_{ca} = 52\,\mathrm{k\Omega}$

(D) $R_{ab} = R_{bc} = R_{ca} = 14.56\,\mathrm{k\Omega}$

(E) None of the above

◇ **Question 3 of 4**   *[CO1] [1 mark]*

How many nodes are in this circuit?

(A) **5**   (B) 6   (C) 7   (D) 3   (E) 4

◇ **Question 4 of 4**   *[CO3] [2 marks]*
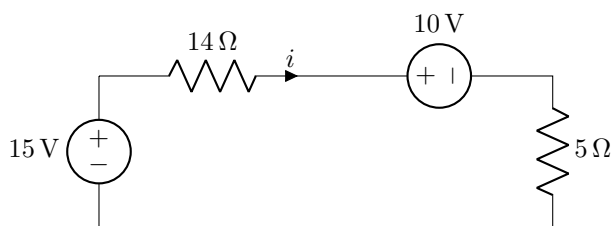
What's the relation between v_1, v_2 and i?

(A) $-15 + 14i - 10 + 5i = 0$

(B) $-15 + 14i + 10 + 5i = 0$

(C) $-15 - 14i + 10 + 5i = 0$

(D) $-15 - 14i - 10 + 5i = 0$

(E) None of the above

ID: Name:

Set
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BRAC UNIVERSITY

Brac University
Semester: Fall 2023
Course Code: CSE250
Circuits And Electronics
Section: 18

Inspiring Excellence

Assessment: *Class Assignment 1*
Duration: 1 hour 20 minutes
Date: September 28, 2023
Full Marks: 10

✓ No washroom breaks. Phones must be turned off. Using/carrying any notes during the exam is not allowed.
✓ All **4 questions** are compulsory. Marks allotted for each question are mentioned beside each question.
✓ Write your answers inside the indicated boxes (where applicable). If you run out of room, continue on the back page.
✓ Symbols have their usual meanings.

Student ID

Set Identifier
§

Answers (1-10)
Answers (11-20)
Answers (21-30)

◇ **Question 1 of 4**   *[CO3] [2 marks]*
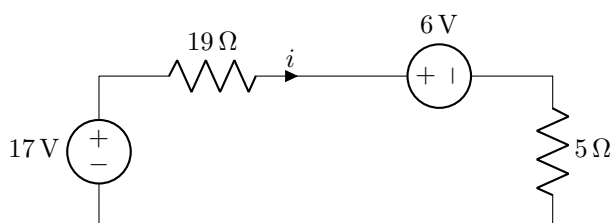
What's the relation between v_1, v_2 and i?

(A) $-17 - 19i - 6 + 5i = 0$

(B) $-17 + 19i - 6 + 5i = 0$

(C) $\mathbf{-17 + 19i + 6 + 5i = 0}$
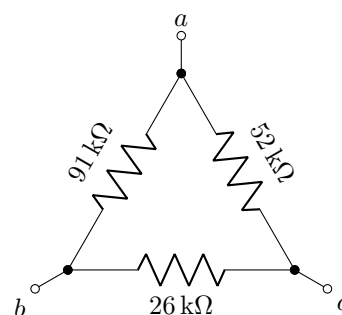
(D) $-17 - 19i + 6 + 5i = 0$

(E) None of the above

◇ **Question 2 of 4**   *[CO1] [2 marks]*

Which of the following circuits is/are impossible (violates Kirchhoff's laws)?
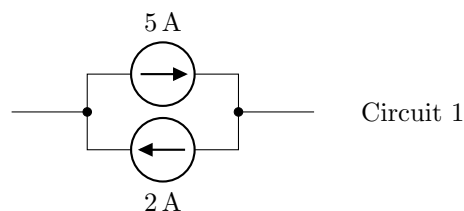
Circuit 1

Circuit 2

Circuit 3

(A) Circuit 1 & 3   (B) **Circuit 1**   (C) Circuit 3
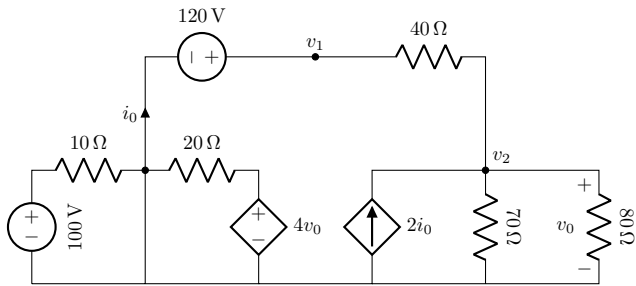
(D) Circuit 2   (E) None of the above

◇ **Question 3 of 4**   *[CO3] [5 marks]*

Which of the following statements is true?

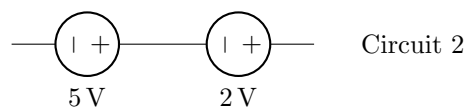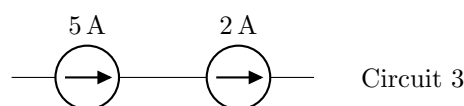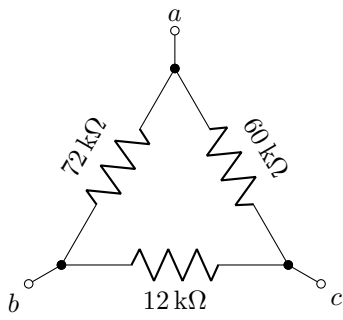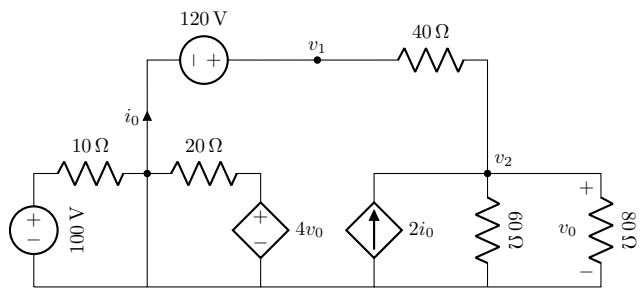(A) $R_{ab} = 72\,\text{k}\Omega, R_{bc} = 12\,\text{k}\Omega, R_{ca} = 60\,\text{k}\Omega$

(B) $\boldsymbol{R_{ab} = 36\,\text{k}\Omega, R_{bc} = 11\,\text{k}\Omega, R_{ca} = 35\,\text{k}\Omega}$

(C) $R_{ab} = 36\,\Omega, R_{bc} = 11\,\Omega, R_{ca} = 35\,\Omega$

(D) $R_{ab} = R_{bc} = R_{ca} = 8.78\,\text{k}\Omega$

(E) None of the above

◇ **Question 4 of 4**   *[CO1] [1 mark]*

How many nodes are in this circuit?

(A) 4   (B) 7   (C) 6   (D) 3   **(E) 5**