



DEPARTMENT:	Electrical & Computer Engineering	DATE & TIME:	3 rd November 2011 at 1830
PAPER NO.:	—	PAGE NO.:	1 of 1
COURSE:	ENG 1450—Intro. Elect. & Comp. Eng.	EXAMINATION:	Mid-term (20%)
DURATION:	1 Hour	EXAMINERS:	C. Shafai/S. Sherif

INSTRUCTIONS:

- Write your full name, student number, and lecture section on both this test paper and the bubble sheet.
 - Do not remove the staple.
 - Closed-book exam. No books/notes allowed.
 - Non-programmable calculators are allowed.
 - Return both this booklet and the bubble sheet at the end of the examination.
 - This is a multiple choice examination and consists of 15 questions.
 - Mark your answer in pencil on the bubble sheet provided.
 - No marks will be given for working on this booklet.
 - Each correct answer has one mark and each wrong answer has zero marks.
 - No negative marks for wrong answer.
-

STUDENT NUMBER

PRINT YOUR NAME IN FULL ON THIS LINE

SIGNATURE

A01 (Prof. Shafai) A02 (Prof. Sherif)

CIRCLE YOUR SECTION

E2-110 E2-160 E3-270

CIRCLE YOUR EXAMINATION ROOM

(n/a)

SEAT NUMBER

Mark	
Out of	15



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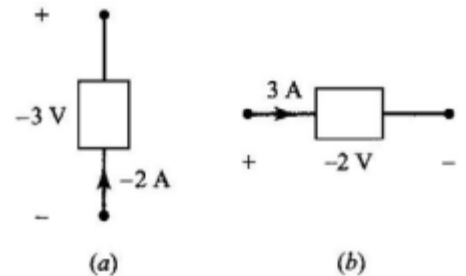
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1 Low pressure sodium lamps are very efficient because they:

- A) Consume negligible electrical power.
- B) Use a phosphorescent coating to convert ultraviolet radiation into visible light.
- C) Emit near the minimum sensitivity of human colour vision.
- D) Emit near the maximum sensitivity of human colour vision.
- E) Are used in street lighting.

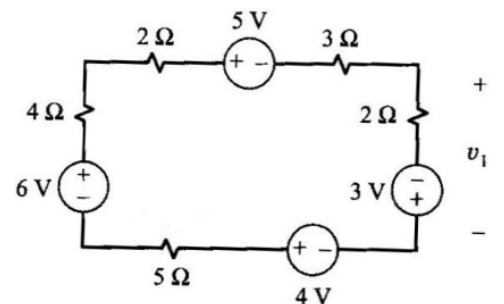
2 Which one of the following statements is true?

- A) Element (a) is generating power and element (b) is consuming power.
- B) Element (a) is consuming power and element (b) is generating power.
- C) Both elements are generating power.
- D) Both elements are consuming power.
- E) None of the above.



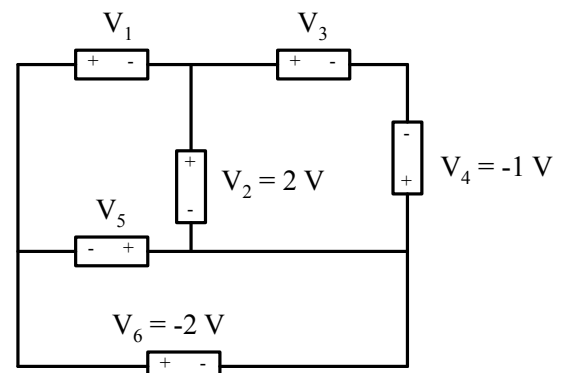
3 What is the value of V_I ?

- A) 4 V
- B) -2 V
- C) -4 V
- D) 5 V
- E) -3 V



4 What is V_I ?

- A) -4 V
- B) 2 V
- C) 5 V
- D) -2 V
- E) 6 V





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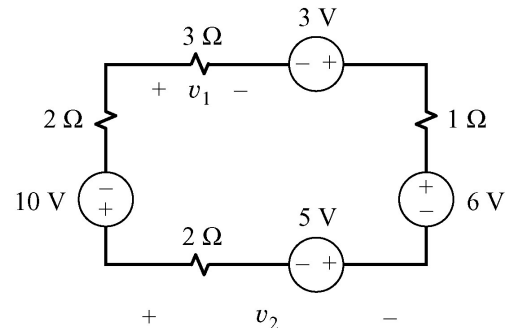
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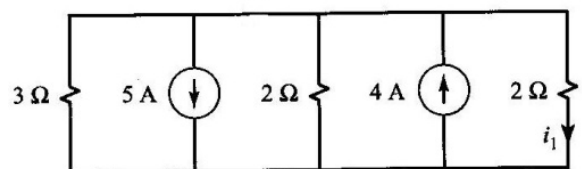
5 How much power is delivered/absorbed by the 5-V voltage source?

- A) 11.25 W, absorbed
- B) 6.75 W, deliverd
- C) 18 W, delivered
- D) 11.25 W, delivered
- E) -6 W, absorbed



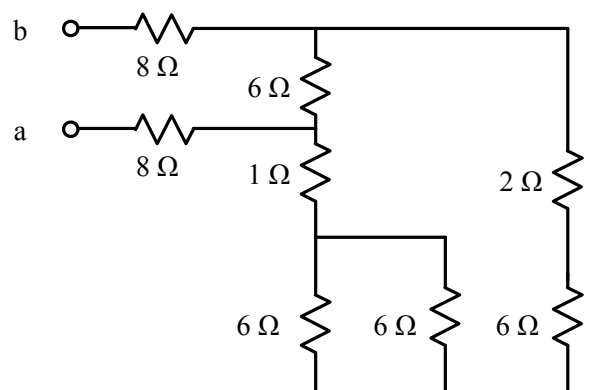
6 What is the value of I_1 ?

- A) -0.375 A
- B) 0.375 A
- C) 0.625 A
- D) -0.625 A
- E) 4 A



7 What is the equivalent resistance at terminals ab ?

- A) 20 Ω
- B) 18.72 Ω
- C) 20.67 Ω
- D) 32 Ω
- E) 102.5 Ω





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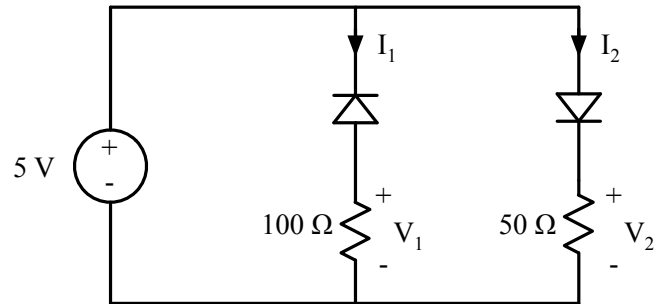
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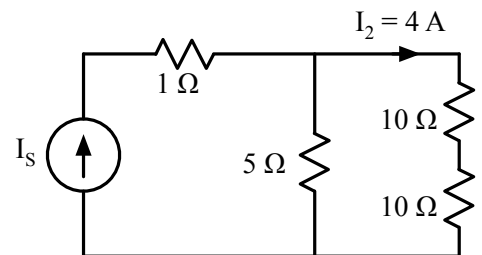
8 What are I_1 and I_2 in this circuit?

- A) $I_1 = 0.043$ A, $I_2 = 0$ A
- B) $I_1 = 0$ A, $I_2 = 0.1$ A
- C) $I_1 = 0$ A, $I_2 = 0.086$ A
- D) $I_1 = 0.05$ A, $I_2 = 0.1$ A
- E) $I_1 = 0.043$ A, $I_2 = 0.086$ A



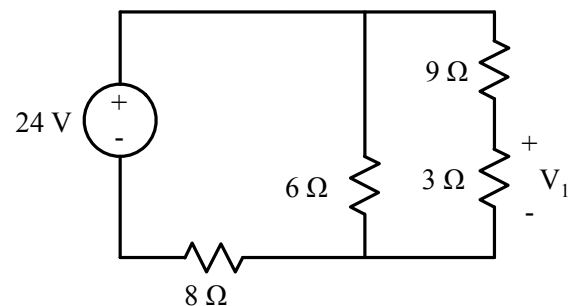
9 What is I_S in the circuit shown below?

- A) 20 A
- B) 16 A
- C) 4 A
- D) 8 A
- E) 40 A



10 What is V_1 in the circuit shown below?

- A) 4 V
- B) 16 V
- C) 2 V
- D) 8 V
- E) 2 A





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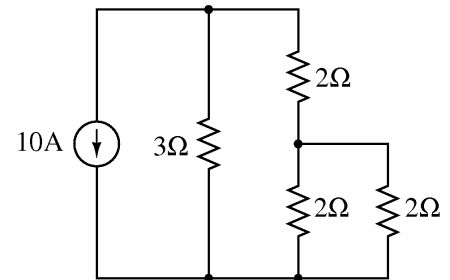
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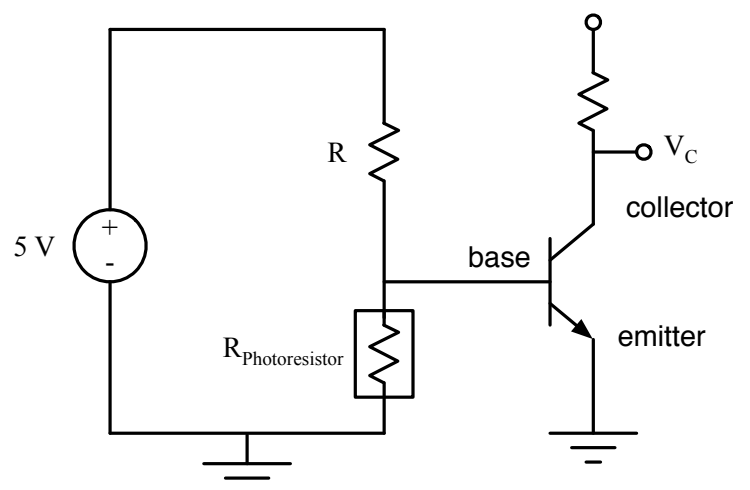
11 How much power is absorbed by the 3- Ω resistor?

- A) 15 W
- B) 100/3 W
- C) 75 W
- D) 100 W
- E) None of the above



12 An ENG 1450 student wants to build a circuit in which a transistor wired as a simple switch turns on when the lights in a room turn off. The student has an npn transistor, and remembers that in order for this transistor to switch completely on, the voltage on the base of the transistor must be higher than the voltage on the emitter by at least 1 V. The student builds the shown photoresistor circuit, and attaches it to the base of the transistor. If the resistance of the photoresistor is 500 Ω when the lights are on, and 10 k Ω when the lights are off, what should R be in order for the transistor to turn on when the room lights turn off?

- A) R = 100 k Ω
- B) R should be no larger than 80 k Ω
- C) R can be between 5 k Ω and 20 k Ω
- D) R = 500 Ω
- E) R should be smaller than 1 k Ω





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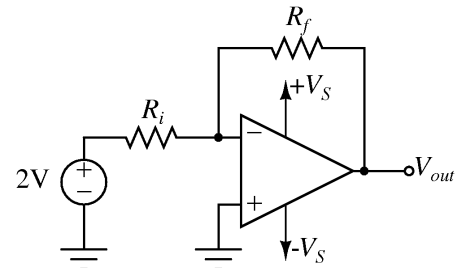
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- 13 A transformer has 1000 windings on the primary side, and 2000 windings on the secondary side. Which of the following statements is true?

- A) A constant 10 V dc signal applied to the primary side will become 20 V dc on the secondary side.
- B) A 50 V sinusoidal signal applied to the primary side will become 25 V on the secondary side.
- C) Transformers work because of magnetic attraction.
- D) A 100 V sinusoidal signal applied to the primary side will become 200 V on the secondary side.
- E) A 100 V sinusoidal signal applied to the secondary side will become 200 V on the primary side.

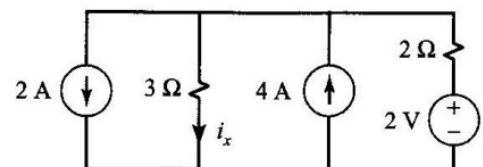
- 14 For what values of V_s , R_f , and R_i is the output voltage of the following circuit, V_{out} , is -8 V?

- A) $V_s = 10$ V, $R_f = 10$ Ω , $R_i = 10$ Ω
- B) $V_s = 10$ V, $R_f = 10$ Ω , $R_i = 40$ Ω
- C) $V_s = 8$ V, $R_f = 10$ Ω , $R_i = 10$ Ω
- D) $V_s = 12$ V, $R_f = 10$ Ω , $R_i = 20$ Ω
- E) $V_s = 15$ V, $R_f = 40$ Ω , $R_i = 10$ Ω



- 15 What is the value of I_x ?

- A) 2 A
- B) 1.2 A
- C) 1.8 A
- D) -1.8 A
- E) 2.6 A





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ENG 1450 2011fall Mid-Term answers

Question / Answer

1. D
2. C
3. B
4. A
5. D
6. A
7. A
8. C
9. A
10. C
11. C
12. C
13. D
14. E
15. B