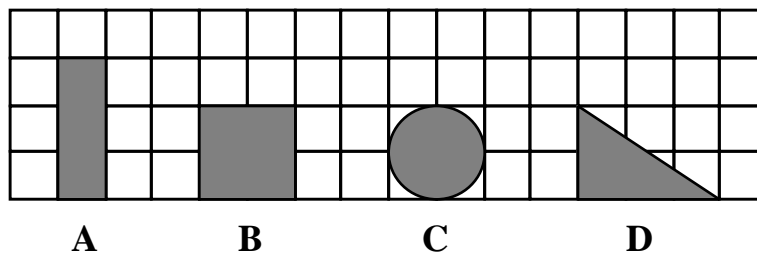


## Resistive Circuit Concepts Diagnostic Test—Instructions <sup>179</sup>

No numerical calculations are requested. All questions can be dealt with conceptually. The type of question used throughout is the ranking task. The following are examples of how you should mark your answer sheet. Place the greatest at the left and least toward the right. When two or more items are of the same "size," you must indicate so in the ranking. Notice how ties are dealt with in the examples.

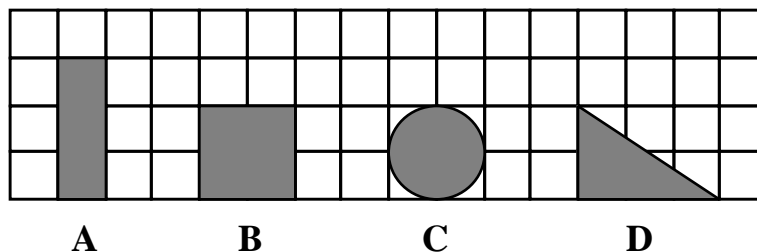
1. Rank according to height.



(on the answer sheet)

A, BCD,    ,      
 ↑                      ↑                      ↓                      ↓  
 greatest                      tie for the least                      because of the tie, these slots empty

1. Rank according to width.



(on the answer sheet)     D , BC , A ,    

### IMPORTANT:

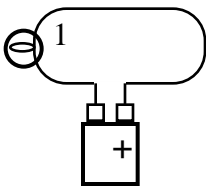
In all of these batteries and bulbs questions:

- a) bulbs are identical
- b) treat the bulbs as ohmic resistors
- c) treat the wires as zero resistance connectors
- d) batteries are ideal (no internal resistance)

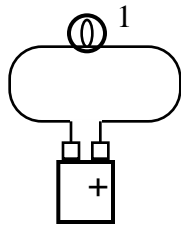
# Resistive Circuit Concepts Diagnostic Test <sup>180</sup>

PART A (questions 1 – 5). Rank according to the brightness of bulb #1.

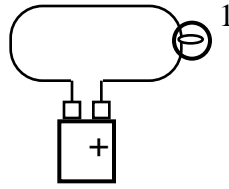
1.



A

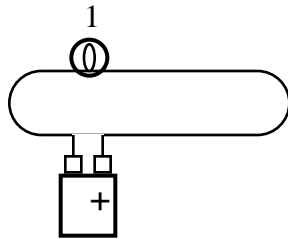


B

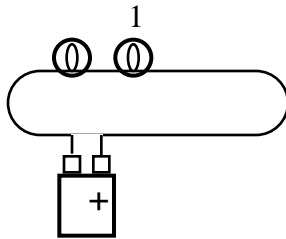


C

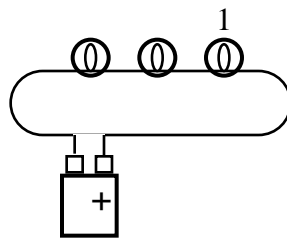
2.



A

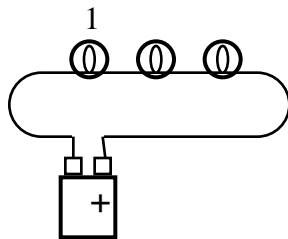


B

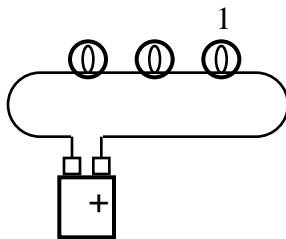


C

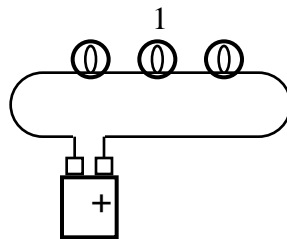
3.



A

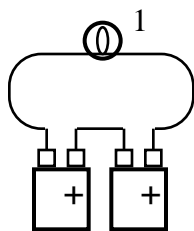


B

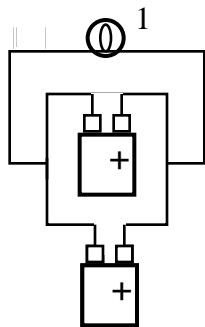


C

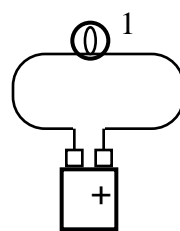
4.



A

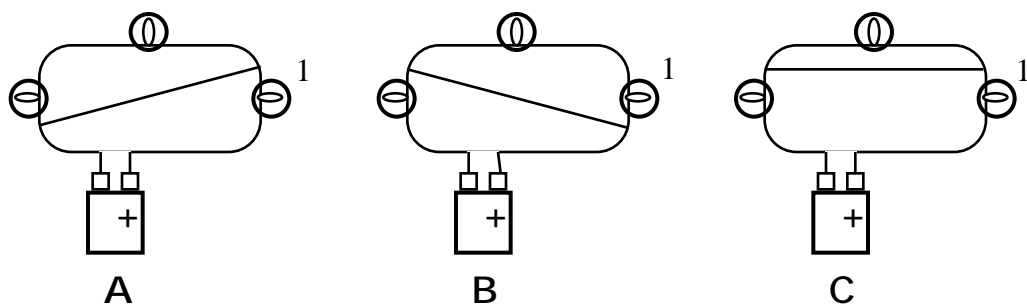


B



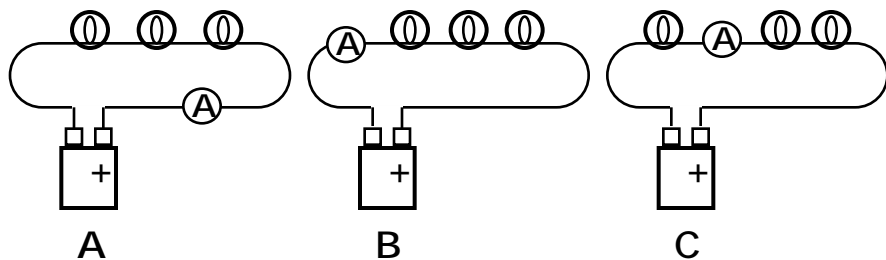
C

5.

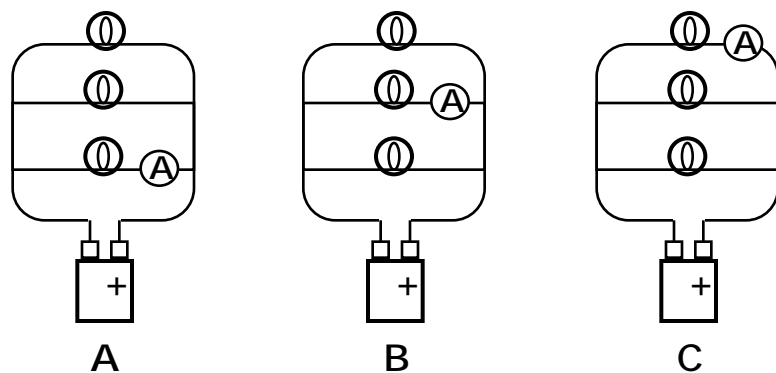


PART B (questions 6 – 9). Rank according to the ammeter reading (current). Assume that the ammeter has zero resistance.

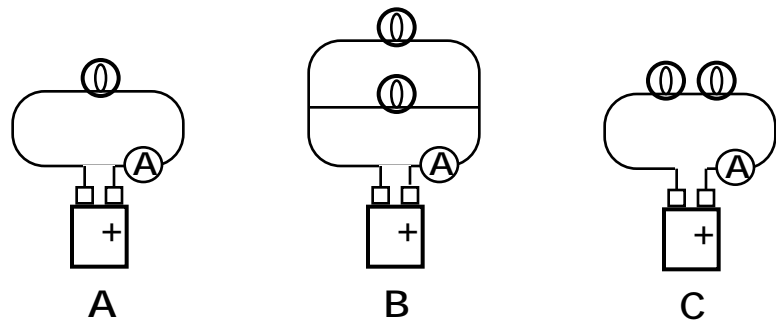
6.



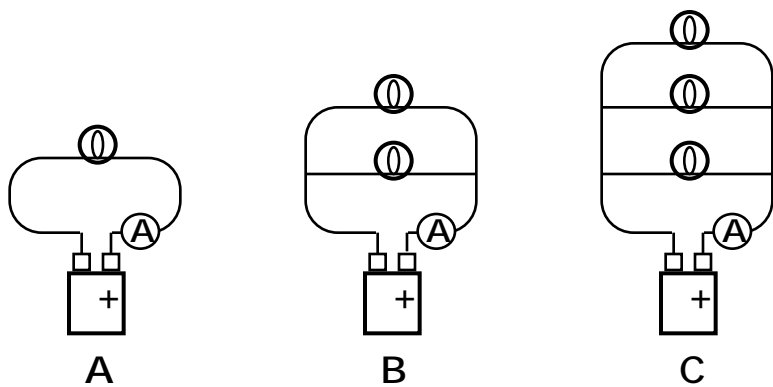
7.



8.

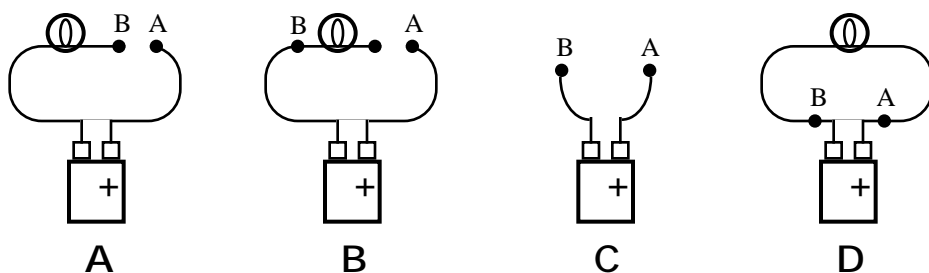


9.

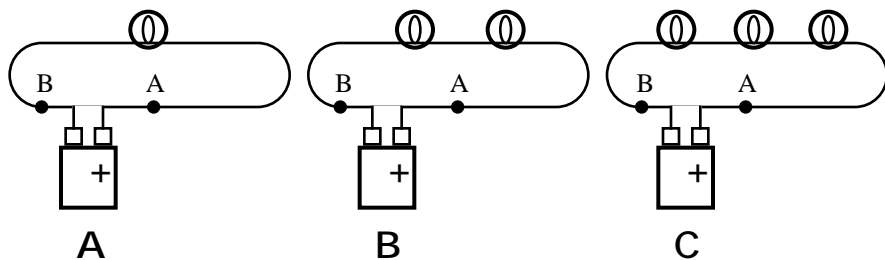


PART C (questions 10 – 16). Rank according to magnitude of difference in potential between points A and B.

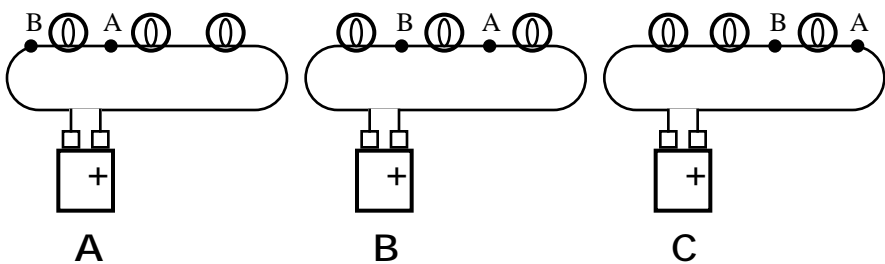
10.



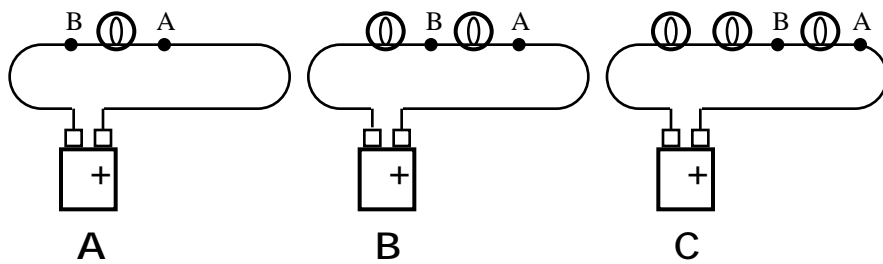
11.



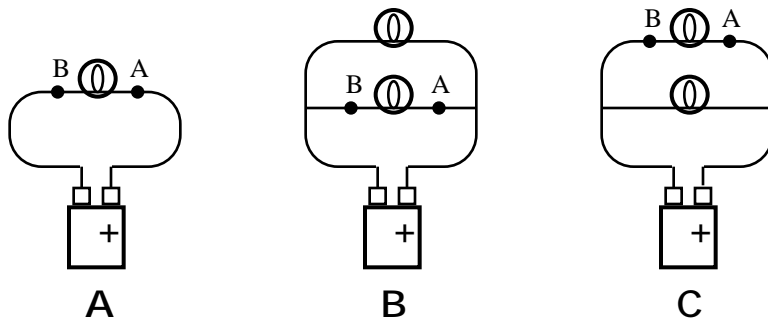
12.



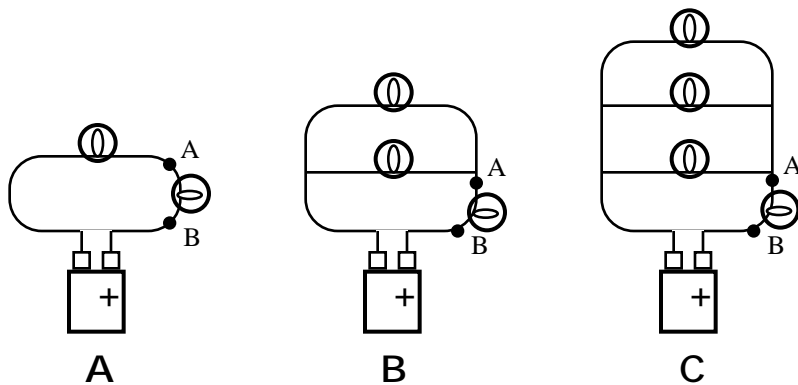
13.



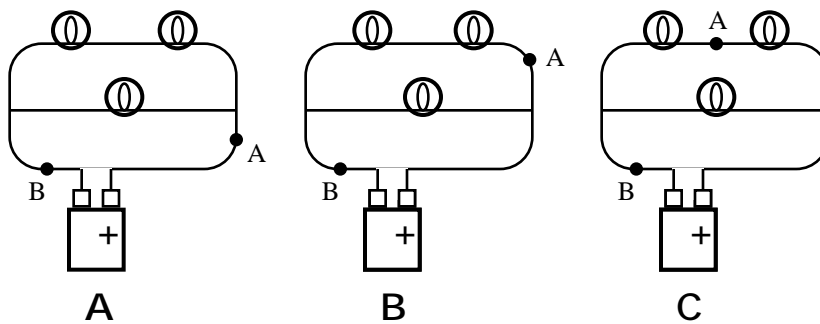
14.



15.

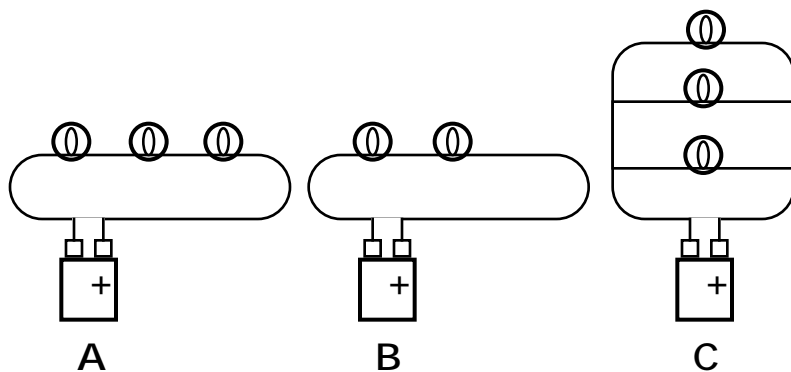


16.

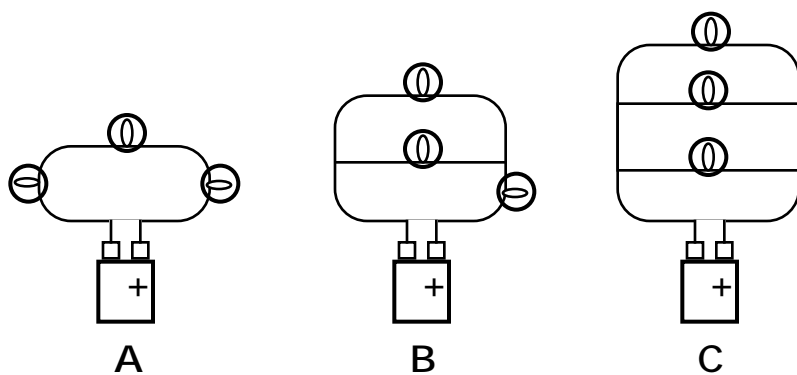


PART D (questions 17 – 20). Rank according to the size of single resistor that would be equivalent to the given group of resistors (treat the bulbs as ohmic resistors).

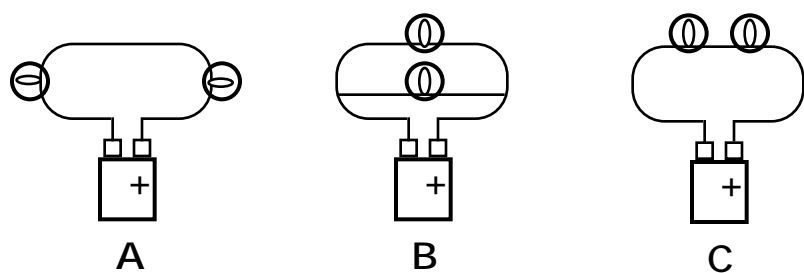
17.



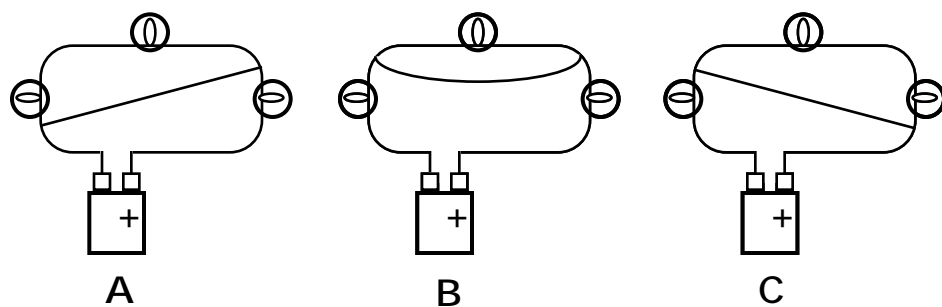
18.



19.



20.



## Resistive Circuit Concepts Diagnostic Test—Fill-In Answer Sheet<sup>181</sup>

Reminder: The answer ABC, means it is a three-way tie. The answer A, BC, means A is greatest while B and C tie for least. There is nothing in the final slot because of the tie.

1. Answer: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Briefly explain.

2. Answer: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Briefly explain.

3. Answer: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Briefly explain.

4. Answer: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Briefly explain.

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<sup>181</sup> D. Albers

5. Answer: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Briefly explain.



6. Answer: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Briefly explain.

7. Answer: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Briefly explain.

8. Answer: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Briefly explain.

9. Answer: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Briefly explain.

10. Answer: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Briefly explain.



11. Answer: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Briefly explain.

12. Answer: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Briefly explain.

13. Answer: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Briefly explain.

14. Answer: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Briefly explain.

15. Answer: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Briefly explain.



16. Answer: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Briefly explain.

17. Answer: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Briefly explain.

18. Answer: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Briefly explain.

19. Answer: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Briefly explain.

20. Answer: \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Briefly explain.