Electricity

ASSIGNMENT BOOKLET

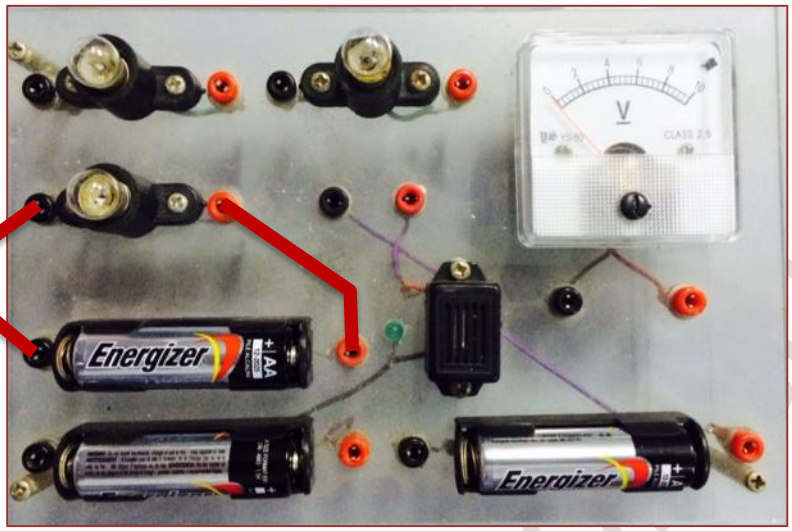
Name:_____ Examiner:_____

Submission Due Date: _____ Parent Signature:_____

Exercise 1: *Experimenting to find out how cells in series affect the brightness of the bulbs.* **[11 Marks]**

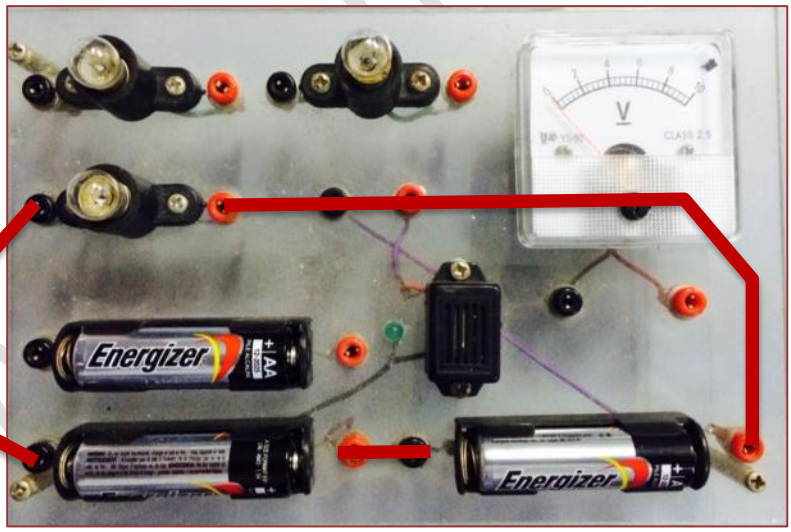
Connect the circuit using your DDRC Breadboard according to the schematics given and then answer the question that follows.

Schematic 1:



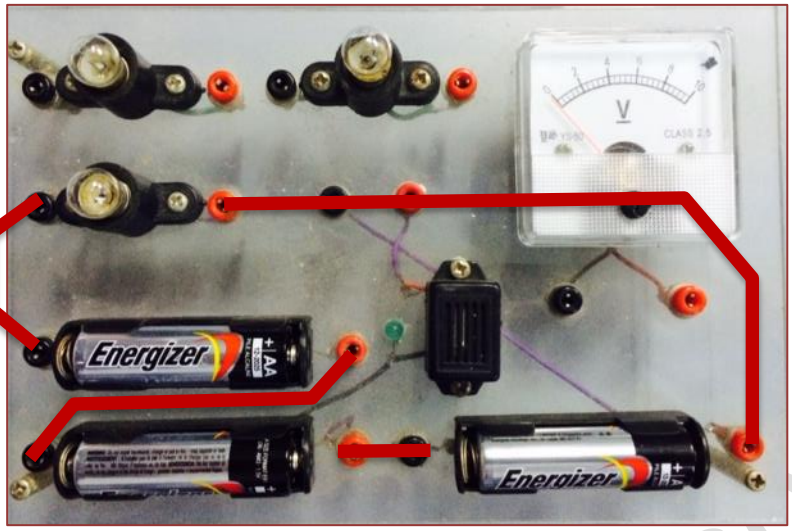
No. of cells connected: _____ Brightness Level*: (dimmest) 1, 2, 3, 4, 5 (Brightest) (circle your answer)

Schematic 2:



No. of cells connected: _____ Brightness Level*: (dimmest) 1, 2, 3, 4, 5 (Brightest) (circle your answer)

Schematic 3:



No. of cells connected: _____ Brightness Level*: (dimmest) 1, 2, 3, 4, 5 (Brightest)
(circle your answer)

Draw circuit diagram of each of the above schematics.

Schematic 1	Schematic 2	Schematic 3

Findings:

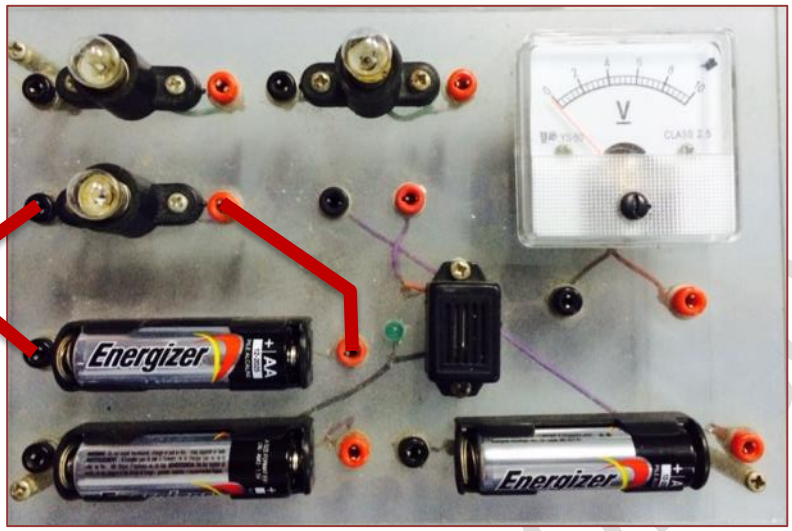
I found out that
i. the bulb glows _____ when there are more cells connected in series.
ii. the bulb glows _____ when there are less cells connected in series.

Exercise 2: *Experimenting to find out how cells in parallel affect the brightness of the bulbs.*

[11 Marks]

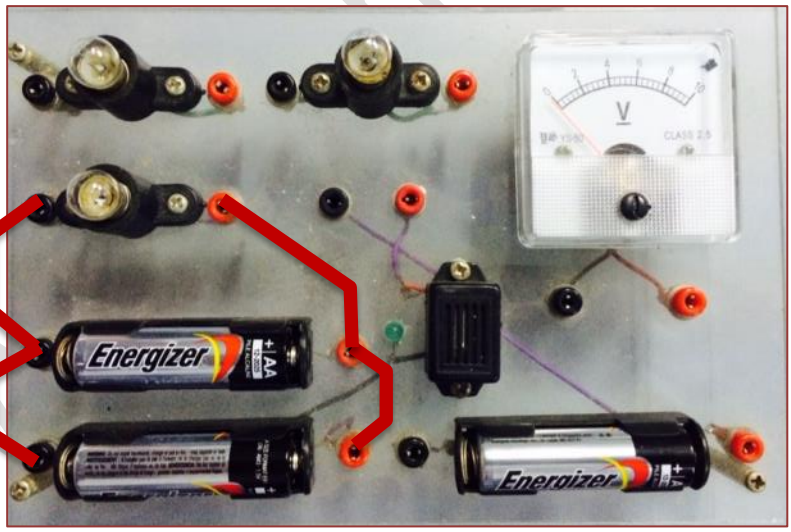
Connect the circuit using your DDRC Breadboard according to the schematics given and then answer the question that follows.

Schematic 1:



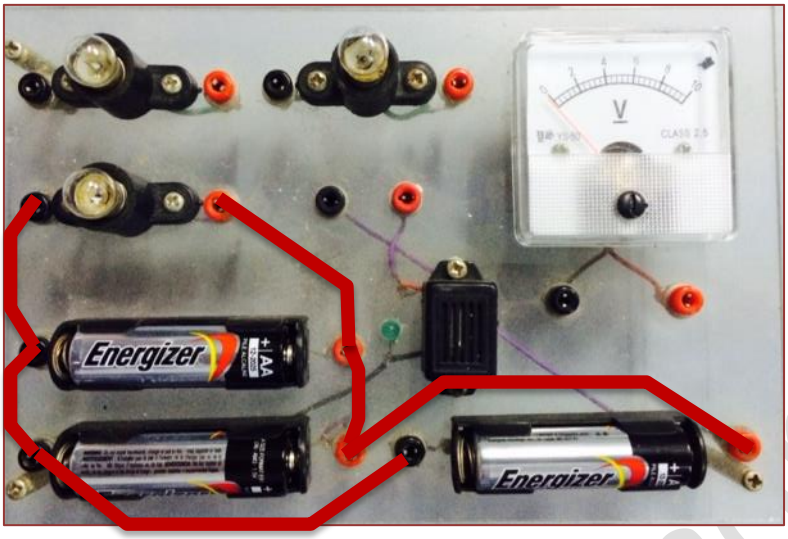
No. of cells connected: _____ Brightness Level*: (dimmest) 1, 2, 3, 4, 5 (Brightest) (circle your answer)

Schematic 2:



No. of cells connected: _____ Brightness Level*: (dimmest) 1, 2, 3, 4, 5 (Brightest) (circle your answer)

Schematic 3:



No. of cells connected: _____ Brightness Level*: (dimmest) 1, 2, 3, 4, 5 (Brightest)
(circle your answer)

Draw circuit diagram of each of the above schematics.

Schematic 1	Schematic 2	Schematic 3

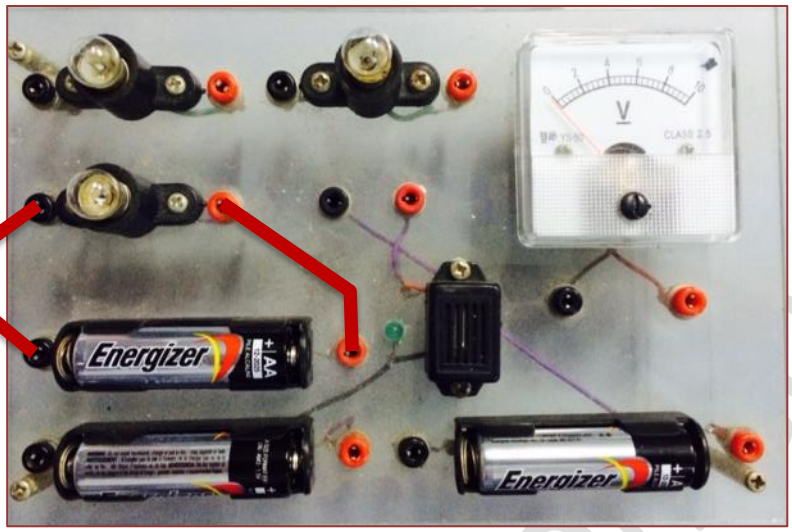
Findings:

I found out that
i. the bulb glows _____ when there are more cells connected in parallel.
ii. the bulb glows _____ when there are less cells connected in parallel.

Exercise 3: *Experimenting to find out how lamps in series behave.* **[12 Marks]**

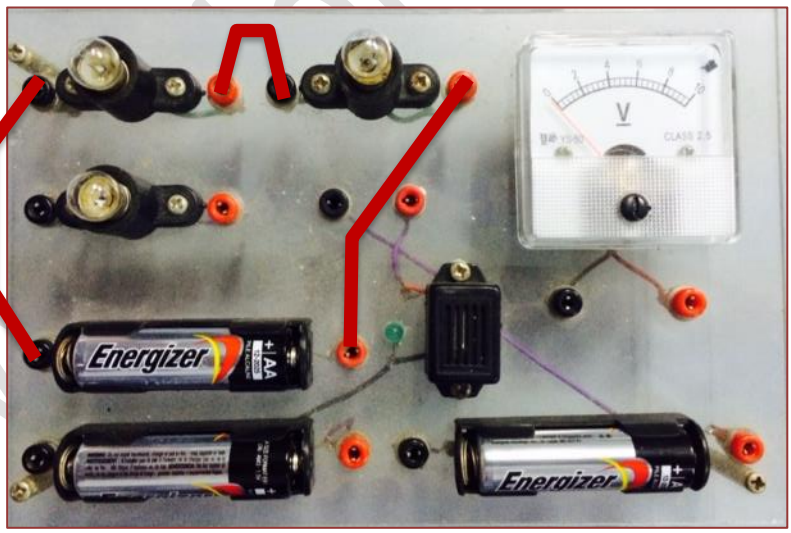
Connect the circuit using your DDRC Breadboard according to the schematics given and then answer the question that follows.

Schematic 1:



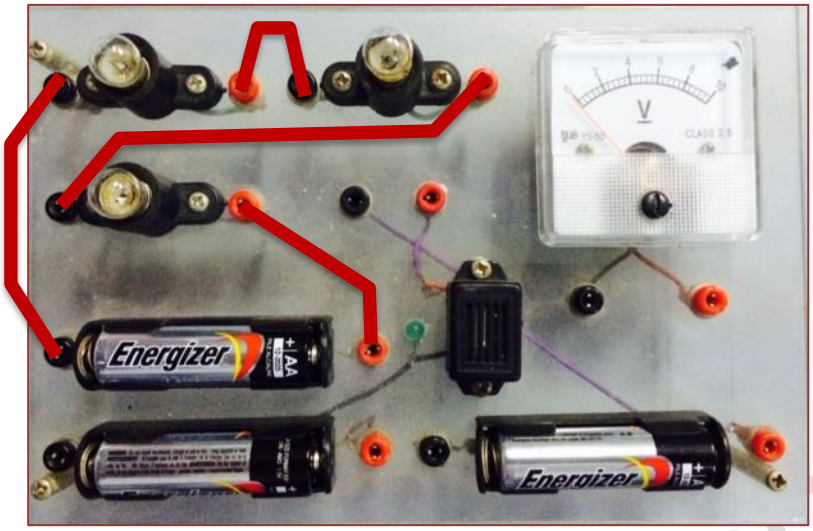
No. of lamps connected: _____ Brightness Level*: (dimmest) 1, 2, 3, 4, 5 (Brightest) (circle your answer)

Schematic 2:



No. of lamps connected: _____ Brightness Level*: (dimmest) 1, 2, 3, 4, 5 (Brightest) (circle your answer)

Schematic 3:



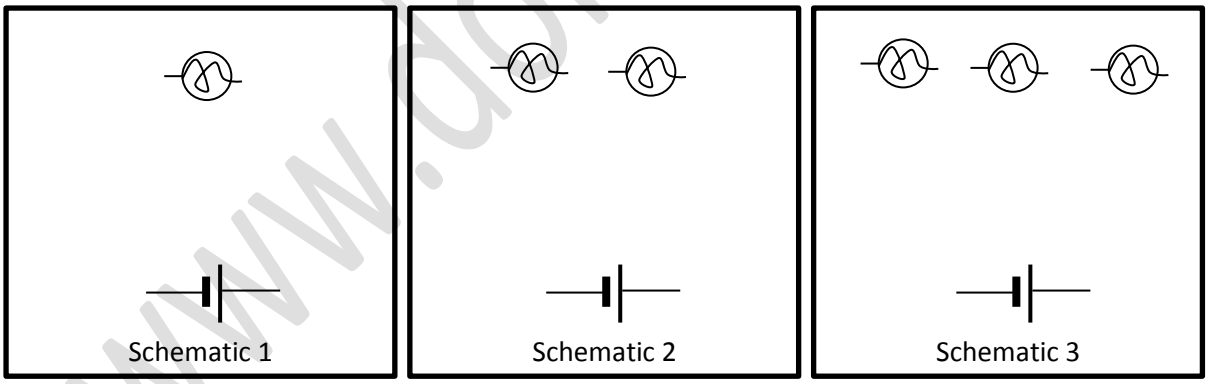
No. of lamps connected: _____ Brightness Level*: (dimmest) 1, 2, 3, 4, 5 (Brightest)
(circle your answer)

In circle 3, remove any one of the lamps and report what happens to the remaining lamps when the lamp is removed.

_____

_____

Draw circuit diagram of each of the above schematics.



Findings:

I found out that

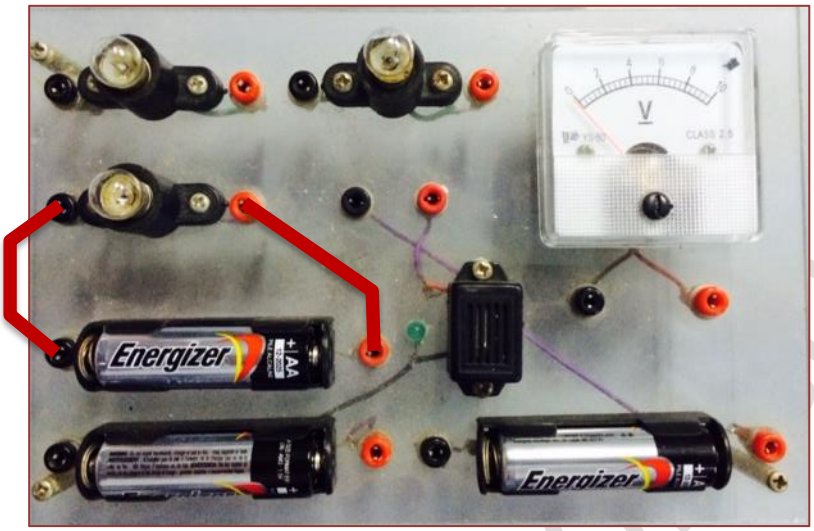
i. the lamps brightness is_____when there are more lamps connected in series.
[Use any of these words to fill in the blanks: *more*, *less*, *same*]

ii. when any lamp in series circuit is removed or fused, the remaining lamps _____.
[Use any of these words to fill in the blanks: *goes off, remain lit*]

Exercise 4: *Experimenting to find out how lamps in parallel behave.* **[12 Marks]**

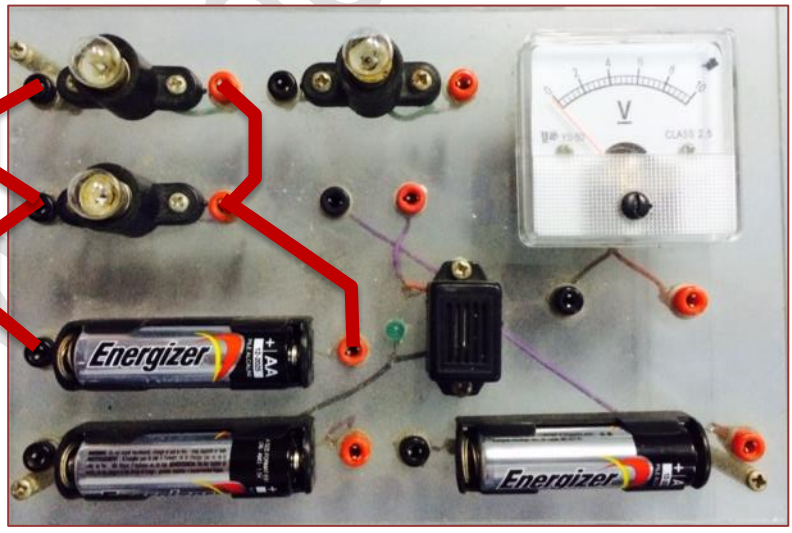
Connect the circuit using your DDRC Breadboard according to the schematics given and then answer the question that follows.

Schematic 1:



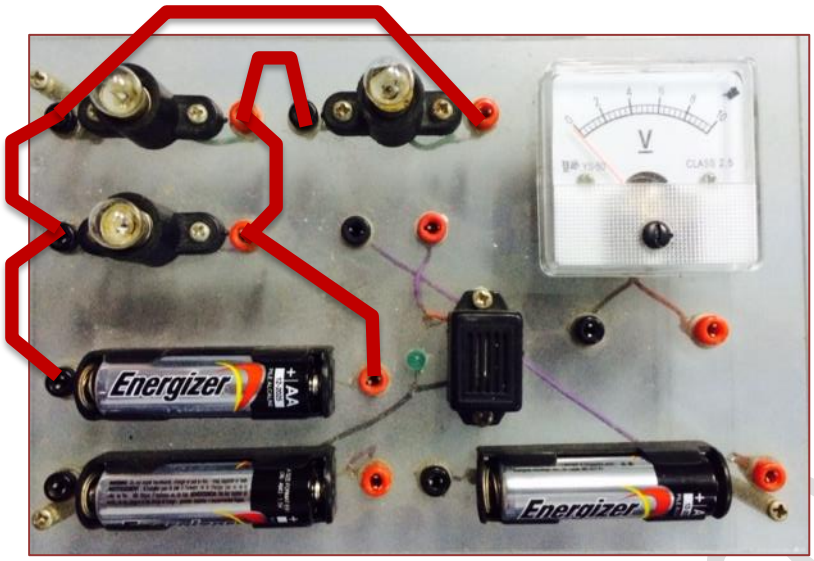
No. of lamps connected: _____ Brightness Level*: (dimmest) 1, 2, 3, 4, 5 (Brightest) (circle your answer)

Schematic 2:



No. of lamps connected: _____ Brightness Level*: (dimmest) 1, 2, 3, 4, 5 (Brightest) (circle your answer)

Schematic 3:



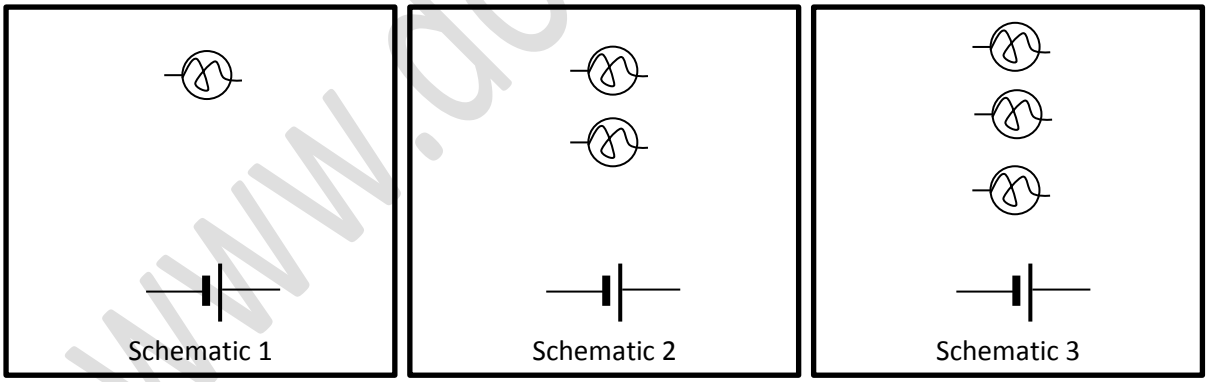
No. of lamps connected: _____ Brightness Level*: (dimmest) 1, 2, 3, 4, 5 (Brightest) (circle your answer)

In circuit 3, remove any one of the lamps and report what happens to the remaining lamps when the lamp is removed.

_____

_____

Draw circuit diagram of each of the above schematics.



Findings:

I found out that

i. the lamps brightness is_____when there are more lamps connected in parallel.
[Use any of these words to fill in the blanks: *more*, *less*, *same*]

ii. when any lamp in parallel circuit is removed or fused, the remaining lamps _____.
[Use any of these words to fill in the blanks: *goes off, remain lit*]

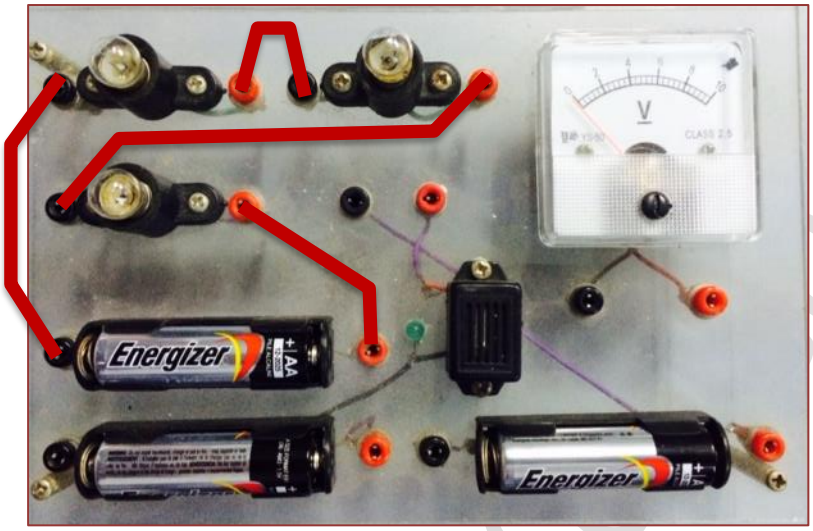
Exercise 5: *Experimenting to compare how lamps in parallel behave differently from lamps in series.*

[5 Marks]

Connect the circuit using your DDRC Breadboard according to the schematics given and then answer the question that follows.

Schematic 1:

Remove any one of the 3 bulbs at a time and observe

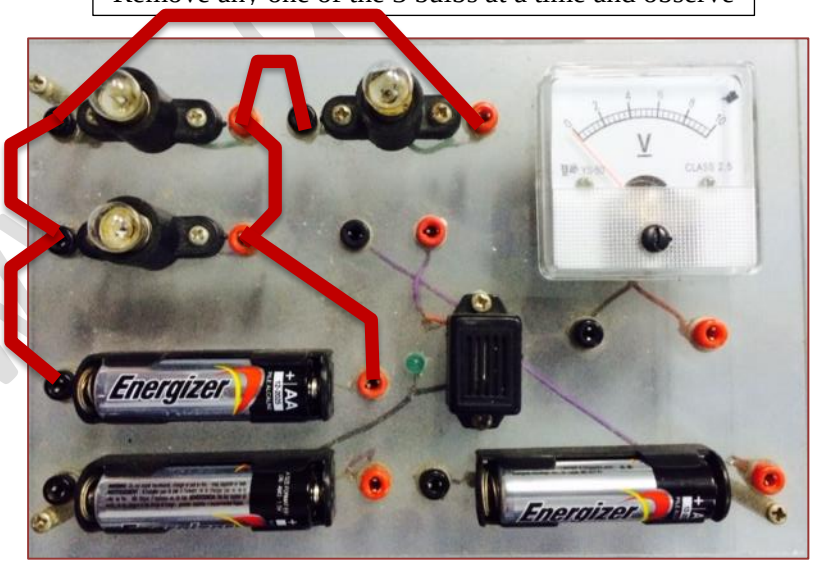


Lamps are connected in series/parallel (cancel the wrong word)

When anyone of the lamp is removed, the rest of the lamps _____.

Schematic 2:

Remove any one of the 3 bulbs at a time and observe



Lamps are connected in series/parallel (cancel the wrong word)

When anyone of the lamp is removed, the rest of the lamps _____.

Conclusion:

The best way to connect lamps is in series/parallel (cancel the wrong word).

The reasons are,

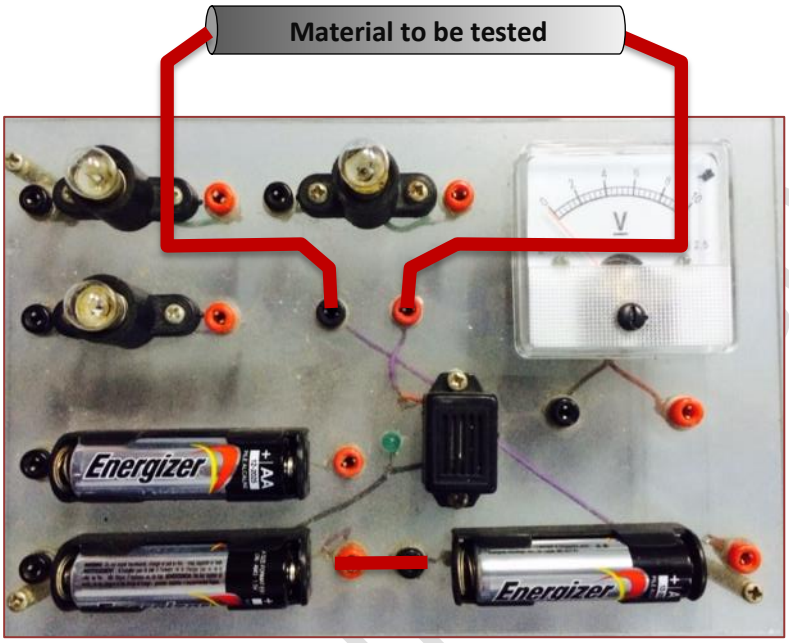
i. the brightness of the lamps _____ when there are more lamps connected in the circuit.

ii. the rest of the lamps _____ if anyone of the lamps get fused, removed or switched off.

Exercise 6: *Experimenting to identify conductors and insulators.* **[10 Marks]**

Connect the circuit using your DDRC Breadboard according to the schematics given. Using the crocodile clips, test the various materials given to you to determine which materials are conductors and which materials are insulators. A 'beep' sound or the 'lit up LED light' on the breadboard indicates a conductor.

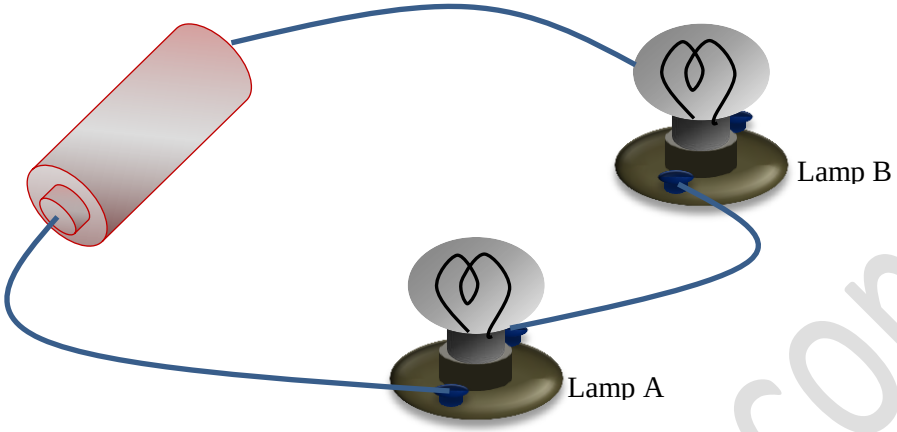
Schematic:



Findings:

Conductors	Insulators

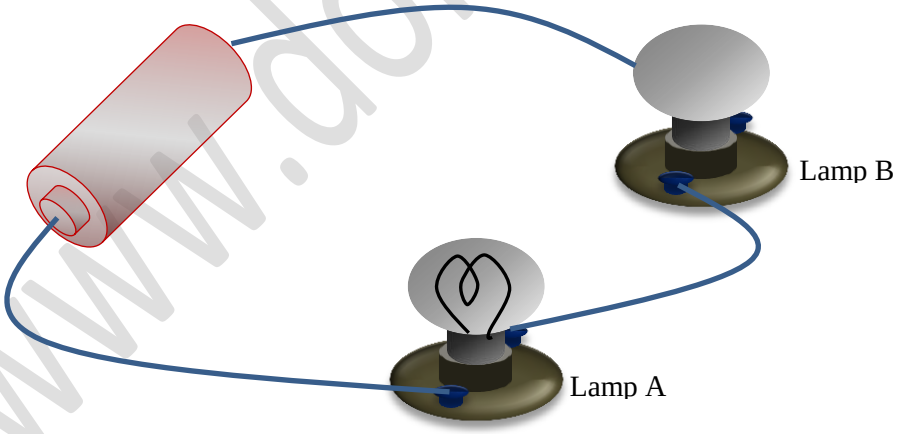
Exercise 7: In each of the following circuits, which of the lamps will light up and which ones will not light up. If the lamp or lamps do not light up, explain the reason. **[21 Marks]**



Lamp _____will light up and lamp _____ will not light up. The reason is that _____

_____

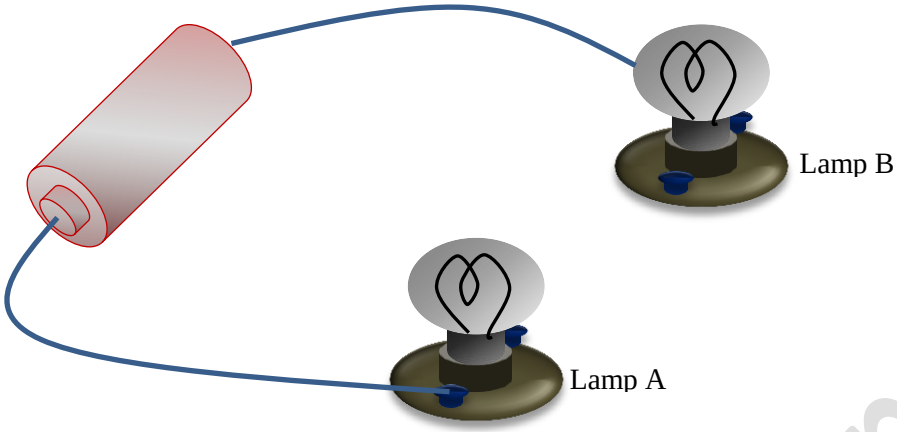
_____.



Lamp _____will light up and lamp _____ will not light up. The reason is that _____

_____

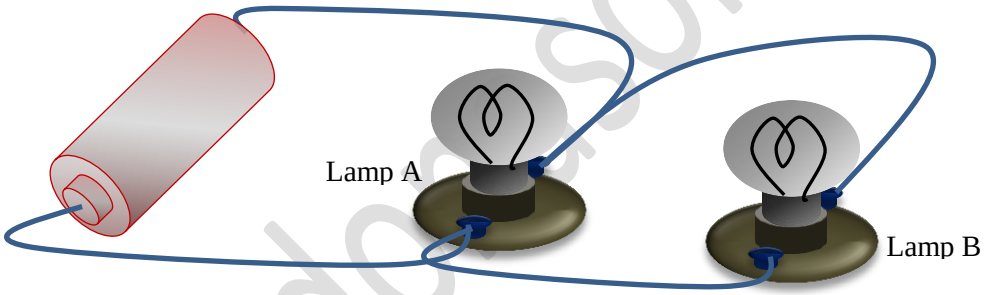
_____.



Lamp _____will light up and lamp _____ will not light up. The reason is that _____

_____

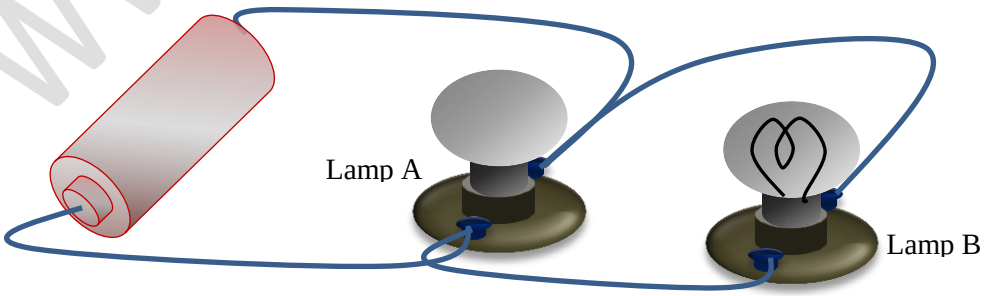
_____.



Lamp _____will light up and lamp _____ will not light up. The reason is that _____

_____

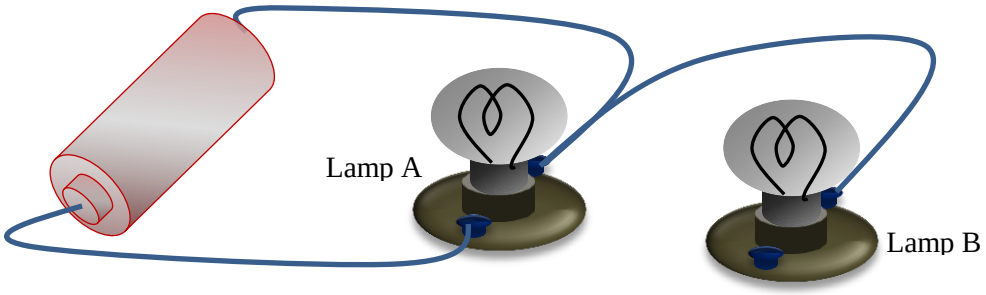
_____.



Lamp _____will light up and lamp _____ will not light up. The reason is that _____

_____

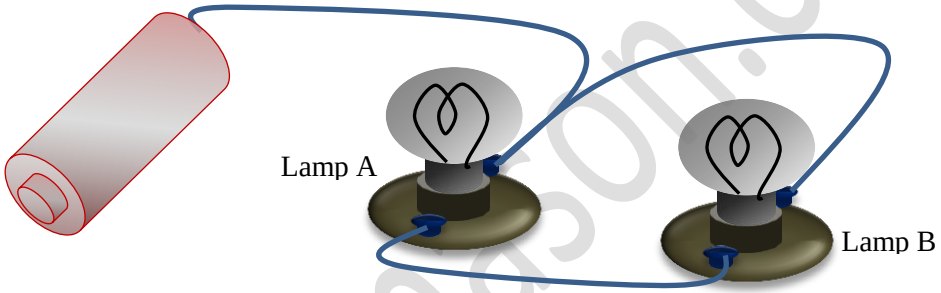
_____.



Lamp _____will light up and lamp _____ will not light up. The reason is that _____

_____

_____.



Lamp _____will light up and lamp _____ will not light up. The reason is that _____

_____

_____.

- End –

Total Marks:

Candidates Score: _____ **Examiner:** _____

Examiner's remarks for the candidate: _____

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