

Distinguish, differentiate, compare and explain what is the difference between Series and Parallel Circuits.

Difference between Series and Parallel Circuits

| S.No. | Series Circuit | Parallel Circuit |
|-------|--|--|
| 1 | Has one pathway. | May have two or more pathways. |
| 2 | Current is same anywhere in the circuit. | Current splits and passes through pathways and then adds up again. |
| 3 | The voltage is shared in ratio to resistance. | The voltage across each pathway is equal. |
| 4 | Resistance adds up and so less current draws in the circuit and battery last longer. | The total resistance is less than the least resistance, current drawn is less but the battery life is short. |
| 5 | If one bulb fuses than the circuit become incomplete. | If one bulb gets fuses still the circuit remains complete and the other bulb glows. |
| 6 | The brightness of the bulbs is less. | The brightness of the bulb is more. |
| 7 | Resistance Equivalent $R_{eq} = R_1 + R_2 + R_3 + \dots + R_n$ | Resistance Equivalent $R_{eq} = 1/R_1 + 1/R_2 + 1/R_3 + \dots + 1/R_n$ |

Similarities between Series and Parallel Circuits

1. Both the circuits either series or parallel have the same aim of converting electrical energy into heat, sound etc.