Automotive Electrical and Engine Performance 9th Edition
Chapter 4 – Series, Parallel, and Series-Parallel Circuits
Multiple Choice Questions Quiz B

1. In a series circuit, the total resistance is calculated by:

a) Dividing the sum of the resistances by the total current

b) Multiplying the resistance values of each component

c) Adding the resistance values of each component

d) Subtracting the lowest resistance from the highest

2. Technician A says that an open in any part of a series circuit will stop current flow entirely. Technician B says that an open will only reduce current flow. Who is correct?

a) Technician A only

b) Technician B only

c) Both Technicians A and B

d) Neither Technician A nor B

3. According to Kirchhoff's Voltage Law in a series circuit:

a) The sum of the current at each junction is zero

b) The sum of all voltage drops is equal to the total voltage applied

c) Total resistance equals the total current times voltage

d) Voltage is divided equally across all resistances

4. What effect does adding another resistor in series have on the total circuit resistance?

a) It decreases the total resistance

b) It has no effect on total resistance

c) It increases the total resistance

d) It doubles the total current flow

5. In a parallel circuit, if one branch opens, the remaining branches:

a) Lose all current flow

b) Continue to conduct based on their own resistance values

c) Share the voltage drop equally

d) Double the current flow

6. Technician A states that current is the same at every point in a series circuit. Technician B says voltage is the same across each resistor in a series circuit. Who is correct?

a) Technician A only

b) Technician B only

c) Both Technicians A and B

d) Neither Technician A nor B

7. A parallel circuit with resistances of 4 ohms and 12 ohms will have a total resistance that is:

a) Higher than the lowest resistance

b) Lower than the lowest resistance

c) Equal to the highest resistance

d) Equal to the sum of all resistances

8. In a series-parallel circuit, a fault in the series portion of the circuit affects:

a) Only the parallel branches

b) All parts of the circuit

c) The ground path only

d) The circuit's voltage source

9. Kirchhoff's Current Law states that the total current entering a junction in a parallel circuit:

a) Equals the sum of currents leaving the junction

b) Is halved across each path

c) Is inversely proportional to resistance

d) Doubles across each path

10. When solving a series-parallel circuit, the initial step is typically to:

a) Identify and combine series resistances within parallel branches

b) Measure total voltage at each branch

c) Calculate total current flow first

d) Adjust resistances to equal values

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Answer Key Quiz B

Correct Answers:

1. c

2. a

3. b

4. c

5. b

6. a

7. b

8. b

9. a

10. a