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**1. An ammeter has an internal resistance of  $50\ \Omega$ . The meter movement itself can handle up to  $1\ \text{mA}$ . If  $10\ \text{mA}$  is applied to the meter, the shunt resistor,  $R_{SH1}$ , is approximately**

- A.  $55\ \Omega$
- B.  $5.5\ \Omega$
- C.  $50\ \Omega$
- D.  $9\ \Omega$

**ANS : B**

**2. The total resistance of a parallel circuit is  $50\ \Omega$ . If the total current is  $120\ \text{mA}$ , the current through the  $270\ \Omega$  that makes up part of the parallel circuit is approximately**

- A.  $22\ \text{mA}$
- B.  $120\ \text{mA}$
- C.  $220\ \text{mA}$
- D.  $50\ \text{mA}$

**ANS : A**

**3. The currents into a junction flow along two paths. One current is  $4\ \text{A}$  and the other is  $3\ \text{A}$ . The total current out of the junction is**

- A.  $1\ \text{A}$
- B.  $7\ \text{A}$
- C. unknown
- D. the larger of the two

**ANS : B**

**4. When an additional resistor is connected across an existing parallel circuit, the total resistance**

- A. remains the same
- B. decreases by the value of the added resistor
- C. increases by the value of the added resistor
- D. decreases

**ANS : D**

**5. When a  $1.6\ \text{k}\Omega$  resistor and a  $120\ \Omega$  resistor are connected in parallel, the total resistance is**

- A. greater than  $1.6\ \text{k}\Omega$
- B. greater than  $120$  but less than  $1.6\ \text{k}\Omega$
- C. less than  $120$  but greater than  $100\ \Omega$
- D. less than  $100\ \Omega$

**ANS : C**

**6. If there are a total of  $120\ \text{mA}$  into a parallel circuit consisting of three branches, and two of the branch currents are  $40\ \text{mA}$  and  $10\ \text{mA}$ , the third branch current is**

- A.  $50\ \text{mA}$
- B.  $70\ \text{mA}$
- C.  $120\ \text{mA}$

D. 40 mA

**ANS : B**

**7. Three lights are connected in parallel across a 120 volt source. If one light burns out,**

A. the remaining two will glow dimmer

B. the remaining two will glow brighter

C. the remaining two will not light

D. the remaining two will glow with the same brightness as before

**ANS : D**

**8. Four equal-value resistors are connected in parallel. Ten volts are applied across the parallel circuit and 2 mA are measured from the source. The value of each resistor is**

A. 12.5  $\Omega$

B. 200  $\Omega$

C. 20 K $\Omega$

D. 50  $\Omega$

**ANS : C**

**9. A set of Christmas tree lights is connected in parallel across a 110 V source. The filament of each light bulb is 1.8 k. The current through each bulb is approximately**

A. 610 mA

B. 18 mA

C. 110 mA

D. 61 mA

**ANS : D**

**10. The power dissipation in each of four parallel branches is 1.2 W. The total power dissipation is**

A. 1.2 W

B. 4.8 W

C. 0.3 W

D. 12 W

**ANS : B**