Exam 2 Practice Test ANSWERS

1. B

2. B Change in potential as we complete a loop must be zero. Starting from the point "b" and proceeding counter clockwise:

$$\Delta V = 16 - I(1.6) - I(5.0) - I(1.4) - 8 - I(9)$$

$$= 8 - I(1.6 + 5.0 + 1.4 + 9)$$

$$= 8 - I(17) := 0$$

↑ Kirchhoff's Loop Rule

$$\therefore \quad I = \frac{8}{17}$$

$$= 0.47 \text{ Amps}$$

3. D

4. A

$I_1 R_1 = I_2 R_2$ (Voltage drop from B to C is same for both paths)

$I = I_1 + I_2$ Kirchhoff's Junction Rule applied to junction B.

Use these 2 equations to solve for I_1. 1st eq $\Rightarrow I_2 = I_1 \frac{R_1}{R_2}$

$$I = I_1 + I_1 \frac{R_1}{R_2} = I_1 \left(1 + \frac{R_1}{R_2}\right)$$

$$I_1 = \frac{I}{1 + \frac{R_1}{R_2}} = \frac{I R_2}{R_2 + R_1}$$

5 B
6 D
7 D
8. A
9. B
10. B
11. C
12 C
13 D
14 B
15 D
16 D
17 A
18 B
19 C
20 B
21 A
22 D
23 B
24 B
25 A
26 A
27 D
28 C
29 B
30. E