

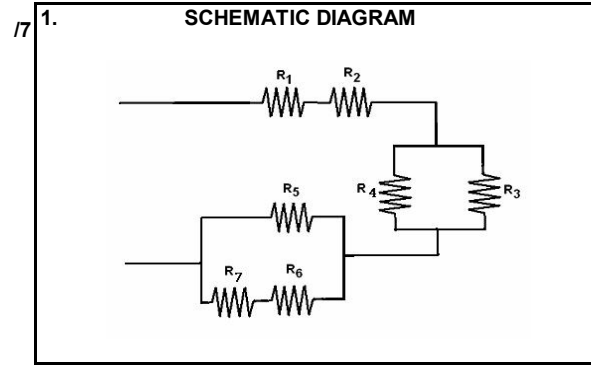


SOUTHEASTERN PA REGIONAL SCIENCE OLYMPIAD 2008

CIRCUIT LAB C DIVISION

Answer KEY

SECTION 1



121 2. THEORETICAL QUANTITIES

Resistor	Resistance (Ω)	Voltage (V)	Current A
R_1	55	30.3	0.551
R_2	18	9.92	0.551
R_3	10	4.86	0.486
R_4	75	4.86	0.0649
R_5	100	14.9	0.149
R_6	15	6.04	0.402
R_7	22	8.85	0.402

114 3. EXPERIMENTAL QUANTITIES

Resistor	Resistance (Ω)	Voltage (V)	Current A
R_1	55	27.7	0.503
R_2	18	9.05	0.503
R_3	10	4.44	0.444
R_4	75	4.44	0.0592
R_5	100	13.6	0.136
R_6	15	5.51	0.367
R_7	22	8.08	0.367

- /3 4. 54.7 volts
- /3 5. 10.4 Ω
- /3 6. 1.85 Watts

SECTION 2

- /3 1. 4.15 k Ω
- /3 2. 6.62 k Ω
- /3 3. 7.39 k Ω
- /5 4. 12.0 k Ω
- /3 5. 6.17 k Ω
- /3 6. 13.3 k Ω
- /4 7. A D C B
- /3 8. 0.00510 Ω
- /5 9. 262 Ω and 38.2 Ω
- /1 10. Resistance decreases

SECTION 3

- /9 1. G F B H A I E C D
- /5 2. 36.5 μ F
- /2 3. 15 volts
- /3 4. 3.00 seconds
- /3 5. 6.00 μ F
- /3 6. 500 k Ω
- /2 7. 2.00 volts
- /3 8. 3.00E-5 A or 0.03 mA
- /3 9. 2.08E-6 A or 0.00208 mA or 2.08 μ A
- /3 10. 8.37E-5 C or 83.7 μ C

SECTION 4

- /1 1. B
- /1 2. C
- /1 3. A
- /3 4. 220 volts
- /3 5. 60 k Ω
- /3 6. 28 μ A
- /3 7. \pm 1 volt
- /5 8. 1.11 Ω
- /5 9. 150 k Ω
- /1 10. in series

SECTION 5

- /2 1. R_1
- /3 2. 56 Ω
- /3 3. 5 mA, R
- /3 4. 11 mA, out of
- /3 5. 440 volts

School code

School name

Participants

FINAL SCORE