

Name: _____

Team Name: _____

Score: ___/102

Biz11's Circuit Lab Answer Sheet

Division C

Science Olympiad Summer Session 2019

Note: All answers are expected to be correct with **significant figures**, it is considered incorrect if it has the wrong amount of significant figures. Additionally, **work must be shown** on all calculation questions. If you need extra room, you may use scrap paper, although you should save it as work will be graded.

History (10 points)

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____

- 7. _____

- 8. _____
- 9. _____

DC and AC current (9.5 points)

- 1. _____

- 2. _____

3. _____

4. _____

5. _____

6.

a. _____

b. _____

c. _____

d. _____

e. _____

Circuit calculations (31 points)

1.

Answer: _____

2.

Answer: _____

3.

Answer: _____

4.

Final equation: _____

5.

Answer: _____

6.

Answer: _____

7.

Answer: _____

8. Answer: _____

9.

a.

Answer: _____

b.

Answer: _____

10.

a.

Answer: _____

b.

Answer: _____

11. Answer: _____

12.

$V_1 = \underline{\hspace{2cm}}$ $R_1 = \underline{\hspace{2cm}}$

13.

$R_1 = \underline{\hspace{2cm}}$ $P_1 = \underline{\hspace{2cm}}$

14.

Answer: _____

Circuit Theory (12.5 points)

1. _____

2. Circle all correct answers:

1 Volt 10 Biots 1000 Faradays/Second $1 \text{ H}^{-1} \cdot \text{kg} \cdot \text{m}^2$ 1 Ampere

3. _____

4. _____

5. _____

6. Circle all correct answers:

- a. Everything has a neutral charge
- b. Charges are additive in nature
- c. Charge is a conserved quantity
- d. Charge travels at the speed of light
- e. Charge is quantized

7. _____

8. _____

9. _____

LEDs (6 points)

1. _____
2. _____
3. _____

4. _____
Answer: _____

5. _____

Magnetism (8 points)

1. _____

2. _____

3.

Magnetic Field = _____

Force = _____

4. _____

Electrical control devices (4 points)

1. _____

2. _____

3. _____

4. _____

5. _____

Logic (7.5 points)

1. _____

2.

Answer: _____

3. _____

4.

Answer: _____

PN Junctions (6 points)

1. _____

2. _____

3. _____

Op-amps (7.5 points)

1. _____

2. _____

3.

Answer: _____

4. _____

5. _____