

**Physical Science**  
**Week 21 Text pp. 448-461**

**True (+) or False (0): Write all answers on the answer sheet.**

1. A semiconductor is a good insulator.
2. A semiconductor “hole” is where there is a missing proton.
3. Electrons are repelled from the negative end of a semiconductor crystal.
4. “Holes” in a semiconductor crystal can be increased by a process known as doping.
5. When arsenic is used to dope silicon, extra holes are added.
6. An n-type semiconductor has additional electrons that are free to move.
7. When extra “holes” are created in a semiconductor, the result is a p-type semiconductor.
8. A p-n junction acts like a vacuum tube triode.
9. A transistor uses more current than a vacuum tube triode.
10. Transistors can be npn type or pnp type.
11. The semiconductor diodes and transistors can be called “solid state” devices.
12. Solar cells are used to power satellites.
13. LEDs are semiconductor devices.
14. An integrated circuit (IC) contains just a few transistors and diodes.
15. An IC chip is not affected by static electricity.
16. A hundred million transistor IC could be the size of a postage stamp.
17. The modern computer era is considered to have begun with the completion of UNIVAC.
18. The most common general purpose computers today are mainframes.
19. Supercomputers are used for research, code breaking, and weather forecasting.
20. Computers are needed to keep the stealth fighter and bomber under control when flying.

**Fill in the answers on the answer sheet:**

1. The two semiconductors most frequently used in electronics are   ?   and   ?  .

What are 3 advantages of semiconductor diodes over vacuum tubes?

- 2.
- 3.
- 4.
5. What is the name of the semiconductor device that can perform like a vacuum tube triode?
6. The most common type of transistor used today is the   ?  .
7. The letters LED stand for   ?  .
8. What is another name for a photovoltaic cell?
9. Name one disadvantage of solar cells.

10. An integrated circuit may be referred to as a \_?\_.

11. The chip manufacturing process starts with a \_?\_.

Name 3 benefits of integrated circuits.

12.

13.

14.

15. Early computers consisted of thousands of \_?\_.

16. The letters PC stand for \_?\_.

17. \_?\_ are large computers designed to store and retrieve vast amounts of information.

18. The most powerful modern computers are called \_?\_.

What are 3 ways computers are used in today's cars?

19.

20.

21.

**Vocabulary - write the definitions for these terms on the answer sheet and be able to explain them next week from memory in your own words .**

1. semiconductor

2. n-type semiconductor

3. p-type semiconductor

4. doping

5. semiconductor diode

6. transistor

7. photovoltaic cell

8. light-emitting diode

9. integrated circuit

10. computer

11. mainframe

12. supercomputer