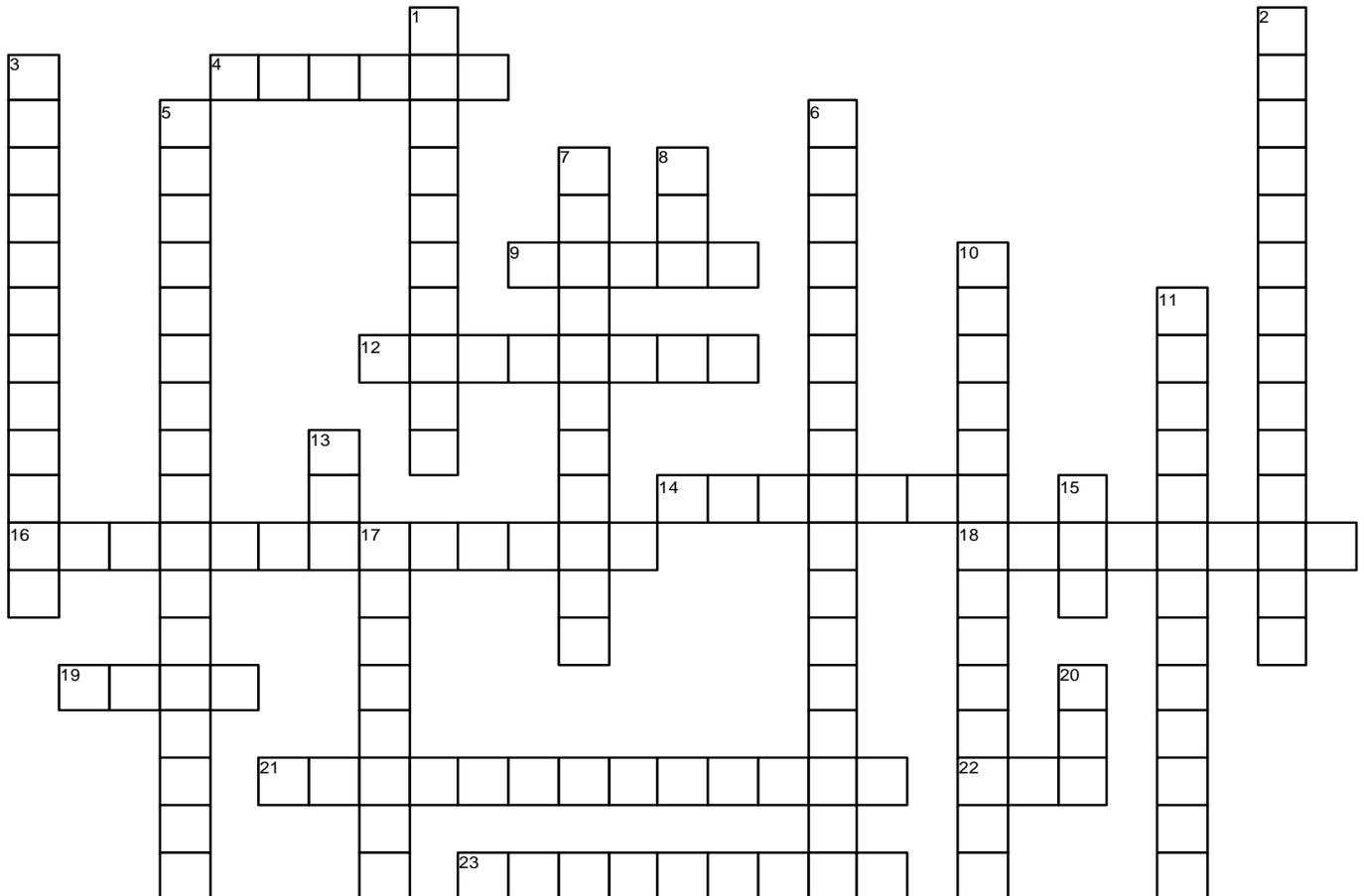# Computer Fundamentals
Chapter 13

ACROSS

4 Most program chips since the early 1990s, called _____ can be reflashed.

9 _____ is a signal from a device that can be as simple as a button or a switch on an instrument panel, or a sensor on an engine.

12 The computer's speed is called the ____ ____.

14 The _____ computer can process thousands of digital signals per second because its circuits are able to switch voltage signals on and off in billionths of a second.

16 _____ _____ creates a three-dimensional performance graph that applies to a given vehicle and powertrain combination.

18 A digital computer changes the analog input signals to digital bits of information through an _____-__-digital converter circuit.

19 Part of the ROM is built into the computer, and the rest is located in an IC chip called a _____ _____ _____ _____.

21 The PCM switches are actually transistors, and are often called _____ _____.

22 Permanent memory is called___.

23 The ratio of on-time relative to the period of the cycle is referred to as ____ _____.

DOWN

1 The SAE bulletin J1930 standardizes the _____ control module as the name of the onboard automotive computer.

2 _____ _____ is another name for a crystal oscillator.

3 The number system containing only 0s and 1s is called the _____ _____.

5 _____ _____ is a process that includes amplifying voltage signals that are too small for the computer circuitry to handle.

6 One of the names for the onboard automotive computer is the _____ _____ assembly.

7 One of the names for the onboard automotive computer is the electronic _____ _____.

8 The ___ can be considered the brain of a computer.

10 _____ ___ can retain its information even when the battery is disconnected.

11 One of the names for the onboard automotive computer is the electronic _____ _____.

13 A type of volatile RAM called ___ can be wired directly to battery power.

15 Temporary memory is called ___.

17 An _____ is an electrical or mechanical device that converts electrical energy into heat, light, or motion.

20 ___ is a method of controlling an output using a digital signal.