# Understanding Computers

# Chapter Two: The System Unit: Processing and Memory

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**Key Term Matching Answers**

**1.** a

**2.** c

**3.** j

**4.** f

**5.** i

**6**. d

**7.** g

**8.** b

**9.** e

**10.** h

**Answers to Self-Quiz**

**1.** T

**2.** F

**3.** T

**4.** T

**5.** F

**6.** terascale computing

**7.** quad-core

**8.** port

**9.** multiprocessing

**10.** **a.** 6 **b.** 2 **c.** 4 **d.** 9 **e.** 7 **f.** 1 **g.** 8 **h.** 5 **i.** 3

**Answers to Exercises**

**1.** a. kilobyte

b. random access memory

c. graphics processing unit

d. Universal Serial Bus

e. PCI Express or Peripheral Component Interconnect Express

f. central processing unit

**2.** CAFE

**3.** a. bit

b. Unicode

c. cache memory

d. arithmetic logic unit or ALU

**4.** Use a USB hub

**5.** Increase memory, upgrade to a larger drive or add a second hard drive, clean up the hard drive, run system maintenance programs, upgrade the Internet connection, etc.

**Discussion Question Solutions**

Student should participate in a class discussion about the topics listed below. Discussions should include the questions mentioned in the included paragraph and student should form an opinion on this topic and express it using clear and coherent statements.

**1.** Motivation for green computing

**2.** Implantable chips

**Project Solutions**

Answers to the projects will vary, but the following answers include a suggested grading rubric and guidelines for what types of information should be included in a student’s project solution in order to receive full credit. **NOTE**: The totals in the rubric tables are formulas. To recalculate them after changing the possible point values or entering a student’s score, right-click on the total and select *Update Field.*

### HOT TOPICS

**1.** **Modular phones** Student should submit a one-page paper summarizing the student’s research and opinion regarding modular phones. Student should indicate if there are any currently on the market, advantages and disadvantages of modular phones, and whether he or she would want to have a modular phone.

|  |  |  |
| --- | --- | --- |
| **Description** | **Pts** | **Student Score** |
| Student prepares a one-page summary of his or her research into modular phones. | **2** |  |
| Students indicates if there are any modular phones on the market and, if not, when they are expected to become available. | **3** |  |
| Student discusses the advantages and disadvantages of modular phones. | **2** |  |
| Student indicates whether or not he or she would want to have a modular phone. | **2** |  |
| Paper is reasonably free of typographical, spelling, and grammatical errors. | **1** |  |
| **TOTAL POSSIBLE POINTS:** | **10** | **0** |

### SHORT ANSWER/RESEARCH

**2.** **Adding Memory** Student should submit a one-page paper summarizing the student’s research into adding new memory to an existing computer. Included should be an explanation of the computer and its current memory configuration, as well as the proper type and configuration of additional memory, whether the existing memory can remain in the computer, and so forth.

|  |  |  |
| --- | --- | --- |
| **Description** | **Pts** | **Student Score** |
| Student prepares a one-page summary which includes the following about an existing computer: manufacturer, model number, CPU, current amount of memory, total memory slots, and number of available memory slots. | **3** |  |
| Student determines the type of memory needed for the computer, including the choices in capacity and configuration, if you have to add memory in pairs, etc. | **5** |  |
| Student includes a statement addressing the options for adding memory to the selected computer. | **1** |  |
| Paper is reasonably free of typographical, spelling, and grammatical errors. | **1** |  |
| **TOTAL POSSIBLE POINTS:** | **10** | **0** |

### HANDS ON

**3.** **Intel Museum Tour** Student should submit a one-page summary of the student’s experience taking a tour of one of the Intel Museum exhibits. Included should be the name of the tour taken and at least three interesting facts the student learned during the tour.

|  |  |  |
| --- | --- | --- |
| **Description** | **Pts** | **Student Score** |
| Student accesses the Intel Museum exhibits site and takes one tour. | **3** |  |
| Student prepares a one-page summary of the exhibit visited which includes at least three interesting facts learned. | **6** |  |
| Paper is reasonably free of typographical, spelling, and grammatical errors. | **1** |  |
| **TOTAL POSSIBLE POINTS:** | **10** | **0** |

### ETHICS IN ACTION

**4.** **People Chips** Student should participate in a discussion (in class, via an online class forum, or via a class blog, depending on the instructor’s directions) about the ethical use and ramifications of implantable chips. Discussions should include the questions mentioned in the included paragraph and student should form an opinion on this topic and express it using clear and coherent statements. A short written summary of the student’s position should be turned in, if assigned.

|  |  |  |
| --- | --- | --- |
| **Description** | **Pts** | **Student Score** |
| Student expresses his or her opinion on the use of human-implantable chips. | **2** |  |
| Student supports his or her position on this issue. | **2** |  |
| Student explains his or her position clearly and understandably. | **2** |  |
| Student actively participates in discussion. | **2** |  |
| Student is respectful of other students’ opinions. | **2** |  |
| **TOTAL POSSIBLE POINTS:** | **10** | **0** |

### PRESENTATION/DEMONSTRATION

**5.** **Binary Conversions** Student should give a 10-minute or less presentation explaining how to convert a three-digit decimal number to binary and hexadecimal and back again, without using a calculator. Also included should be an explanation of how the decimal number 10 can be represented in base 3. . The student should use good presentation techniques (speaking clearly and slowly at an appropriate volume, no distracting mannerisms, etc.) and use at least one of the following: whiteboard, handouts, or a computer-based slide presentation. A short written summary should be turned in, if assigned

|  |  |  |
| --- | --- | --- |
| **Description** | **Pts** | **Student Score** |
| Student demonstrates how to convert a 3-digit number to binary and to hexadecimal and back again, without using a calculator. | **4** |  |
| Student shows how to represent a binary number in base 3. | **3** |  |
| Presentation includes at least one of the following: whiteboard, handouts, or a computer-based slide presentation. | **1** |  |
| Student uses good presentation techniques (such as speaking clearly and slowly at an appropriate volume with no distracting mannerisms) and the presentation lasts an appropriate length. | **2** |  |
| **TOTAL POSSIBLE POINTS:** | **10** | **0** |

### BALANCING ACT

**6.** **Should Computers Run Vital Systems Like the Stock Market?** Student should pick a side and gather supporting evidence about this issue and then participate in a classroom discussion or prepare a one- to two-page paper (depending on the instructor’s directions). Discussions should include the issues and questions mentioned in the included paragraph and student should express his or her position using clear and coherent statements.

|  |  |  |
| --- | --- | --- |
| **Description** | **Pts** | **Student Score** |
| Student expresses his or her opinion on this issue and states his or her position clearly and understandably. | **5** |  |
| Student adequately supports his or her position on this issue. | **2** |  |
| Student actively participates in discussion and is respectful of other student’s opinions or the position paper is of reasonable length and reasonably free of typographical, spelling, and grammatical errors, depending on which method of discussion was assigned. | **3** |  |
| **TOTAL POSSIBLE POINTS:** | **10** | **0** |

**Chapter Quiz Answers**

The Chapter Quiz (located in the Instructor’s Manual) may be reproduced to distribute to your students for an additional homework or an in-class quiz.

Answers:

1. F
2. T
3. F
4. T
5. F
6. b
7. e
8. e
9. c
10. d