

Name: _____	ID No. _____
Date : _____	Section : _____

Problem Set 2

1. MULTIPLE CHOICES (MCQs)

1)

The binary number 11001010 is equivalent to the decimal number _____ and the hexadecimal number _____. (Hint: You may use your own calculations, as we learned in the class. You may also use Microsoft Windows Calculator or any physical scientific calculator.)

- 92, 5C
- 202, CA
- 161, A1
- 178, B2

2)

The Hexadecimal Number 1AA1 is equivalent to _____. (Hint: You may use your own calculations, as we learned in the class. You may also use Microsoft Windows Calculator or any physical scientific calculator.)

- 6682
- 2721
- 426
- 6817

3)

The sum of the two binary numbers 1000 and 1100 is _____ (Hint: You may use your own calculations, as we learned in the class. You may also use Microsoft Windows Calculator or any physical scientific calculator.)

- 10011
- 10101
- 10100
- 10110

4)

A _____ is connector on the exterior of a PC's system unit to which a device may be attached.

- Register
- Port
- Expansion slot
- Bus

5)

The _____ is the part of the CPU that attempts to retrieve data and instructions before they are needed for processing, in order to avoid delays.

- Bus Interface unit
- Prefetch unit
- ALU
- Registers

6)

A _____ fits into a slot located on the exterior of a notebook or tablet computer to provide new functionality or to attach a peripheral device.

- PC Card
- USB
- CPU
- Bus

7)

Another way to say “approximately” one trillion bytes is:

- one gigabyte
- one megabyte
- one terabyte
- one Petabyte

8)

Which type of the following memory is volatile-i.e. erased when the power goes out?

- Registers
- RAM
- Internal cache
- all of the above

9)

A(n) electronic path within a computer over which data travels is called a(n) _____.

- prefetch unit
- bus
- RAM
- motherboard

10)

The parts of the CPU that are used to store instructions or to store data before, during, and after processing are called _____.

- Registers
- ALU
- Prefetch Unit
- Decode Unit

11)

Your strategies of speeding up your system include all of the following except:

- Add more memory.
- Perform system maintenance.
- Moving circuits closer together.
- Upgrade your CPU.

12)

Typical CPU components include all of the following except:

- Bus interface unit
- USB
- Internal cache
- Decode unit

2. TRUE OR FALSE (T / F)

1)

Cache memory is a group of fast memory chips located on or near the CPU to help speed up processing.

True

False

2)

Pipelining is a CPU feature designed to begin processing a new instruction as soon as the previous instruction completes the first stage of the machine cycle.

True

False

3) Nanotechnology will provide computer chips thousands of times smaller than today's components because they are built at the atomic and molecular levels.

True

False

4) Common ports include FireWire, MIDI, IrDA.

True

False

5) Terascale computing uses multi-core in conjunction with multithreading hardware and software.

True

False

6) The decode unit takes instructions from the prefetch unit and translate them into a form that the control unit can understand.

True

False

3. TEXT DATA

During the 2008 Republican National Convention (RNC) in the USA, a popular election campaign slogan floated by the RNC chairman Michael Steele

Drill, Baby, Drill

1. If the slogan was first written and saved in **Unicode** encoded message, how big is the file size?
2. If a clever sniffing program could intercept any communication message to Presidency (Bush/Cheney) or Republican Candidates (McCain/Palin) if the text file size is 15 bytes or more, Would it be possible not have been intercepted if it was saved in **ANSI's ACSII** text-encoding?

4. GRAPHICS DATA

- Download the file Mobile_Internet.bmp from the course webpage at
- http://academics.nawar.us/Mobile_Internet.bmp

- Open the file in Microsoft Windows **Paint**.

Hint (Do you know you that if you are online, you can open directly this file from P without having to first download it? Just type http://academics.nawar.us/Mobile_Internet.bmp)

Answer the following

- (a) What is the original file size and color information?
- (b) Save the file as 256 colors bitmap. What is the file size? What happens on the picture?
- (c) Save the file as 16 colors bitmap. What is the file size? What happens on the picture?
- (d) Save the file as monochrome bitmap. What is the file size? What happens on the picture?

5. QUESTIONS

- (a) Identify and briefly explain the main elements of the machine cycle.
- (b) What are individual persons' strategies of making the system unit faster today?
- (c) What are the manufacturers' strategies of making the computer faster today and in the future?
- (d) Compare between the RAM, Cache memory and Registers.