Name: Id#

COE 301/ICS 233, Term 172

Computer Architecture & Assembly Language

Quiz# 1

Date: Thursday, Feb. 1, 2017

# **Q1.** Fill the blanks in the following questions:

## Two advantages of programming in assembly language are\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

## Two advantages of programming in high-level language are\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

## With a 24-bit address bus and 32-bit data bus, the maximum memory size (assuming byte addressable memory) that can be accessed by a processor is \_\_\_\_\_\_\_\_\_\_\_ and the maximum number of bytes that can be read or written in a single cycle is \_\_\_\_\_\_\_\_\_\_\_\_.

## The advantage of static RAM over dynamic RAM is that it is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ but the disadvantage is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

## Accessing data from random access memory is slower than accessing it from \_\_\_\_\_\_\_\_\_\_ memory but faster than accessing it from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_memory.

## The bandwidth mismatch between the speed of processor and the speed of main-memory is alleviated by using \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

## The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is considered as an interface between software and hardware and consists of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

## Given a magnetic disk with the following properties:

* Time of one rotation is 8 ms
* Average seek = 8 ms, Sector = 512 bytes, Track = 200 sectors

The average time to access a block of 100 consecutive sectors is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ms.

# **Q2.** Briefly describe the main functionality of the program counter register (PC), the instruction register (IR), and the fetch-execute process in a computer.