



Capital University of Science and Technology

Department of Computer Science

CS 2523 – Computer Organization and Assembly Language

QUIZ NO. 1: Data Representation, Basics of Assembly Language

CLO: 1. Define concepts in the design of microprocessor as state machine and designing its data path and its controller.

Semester: Summer 22

Max Marks: 10

Instructor: Ms. Tayyaba Zaheer

Date: August 15, 2022

Max Time: 10 Minutes

Name:

Reg. No.

Question No.1 [03 Marks]

Write the following in the correct order of 5 levels of programmer's view of a computer: [You can only write numbers in order like ii, iii, vi...]

- i. Assembly Language
- ii. Application Programs High-Level Language
- iii. Microarchitecture
- iv. Digital Logic
- v. Instruction Set Architecture
- vi. Operating System

Solution:

- ii, i, vi, v, iii, iv
ii. Application Programs High-Level Language,
i. Assembly Language,
vi. Operating System,
v. Instruction Set Architecture,
iii. Microarchitecture
iv. Digital Logic

Question No. 2 [03 Marks]

Which of the following are the correct 3 Data Path Operations?

- i. Fetch, Load, ALU.
- ii. Load, ALU, Store.
- iii. Load, Write, Store.

Solution:

- ii

Question No. 3 [04 Marks]

Convert Hexadecimal 30_{16} to binary: [Hint: Hexadecimal to decimal, decimal to binary]

Solution:

Given hexadecimal number is 30

$$30_{16} = (3 * 16^1) + (0 * 16^0) \\ = 48 + 0$$

$$= 48(\text{Decimal number})$$

Now we have to convert 48 to binary

$$\begin{array}{r} 2 \overline{)48} \\ 2 \overline{)24} \text{ -- } 0 \\ 2 \overline{)12} \text{ -- } 0 \\ 2 \overline{)6} \text{ -- } 0 \\ 2 \overline{)3} \text{ -- } 0 \\ 2 \overline{)1} \text{ -- } 1 \\ 2 \overline{)0} \text{ -- } 1 \end{array}$$

The binary number is 110000_2

$$30_{16} = 110000_2$$