



Daffodil International University

Faculty of Science and Information Technology

Department of CSE

Midterm Examination, Semester: Fall 2022

Course Code: CSE 411 Course Title: Computer Architecture & Organization

Section: All

Time: 01:30H

[Answer all the Questions, Obtain marks in the right-side]

Full marks: 25

Throughout history humans have relied mainly on their brains to perform calculation. As civilization advanced, a variety of computing tools were invented that aided. Calculating machines capable of performing the elementary operations of arithmetic (addition, subtraction, multiplication and division) appeared in the 16th century. Initially computers are mechanical and then it focusing on electronic computers, as mechanical computers have some drawbacks. One of the First-Generation Computers built at the University of Pennsylvania. Others are developed at Institute for Advanced Studies in Princeton which have two key aspects. The Third Generation allowed large numbers of transistor associated components to be combined on a tiny piece of semiconductor material, usually silicon. There is different level in the design methodology of a computing system. Which play deferent role in computing system designing. Popular lower-level components are gates and flip-flops.

N.B. Questions 1 (a, b, c) and question 2 (i, ii) are relevant with this scenario.

1.	a.	Define the thought process of Human brain and Computer System .	[2]	CO1
	b.	List the key aspects of the computer developed in University of Pennsylvania.	[2]	
	c.	Recall first widely known general purpose electronic computer with its features and supported by relative architecture .	[4]	
2.	i.	Explain the performance differences of low-level components mentioned in the scenario.	[2]	CO2
	ii.	Illustrate the major performance unit of processor level computer system with the activity they perform, supported by their relevant architecture .	[5]	
	iii.	Suppose you have a Hexadecimal number as: 3A8 , now convert this number to Binary. Unsigned and Signed number system.	[2]	
	iv.	Demonstrate Half-Adder Circuit by using only NOR Gate.	[3]	
3.	a.	Construct differentiation between fixed length and variable length instruction set design with proper statemares and examples. Unsigned and Signed number system.	[2]	CO3
	b.	Suppose you have 4 instructions , now develop the general execution of these instructions and then find some effective way to increase throughput of the system.	[3]	