Student name:_____Janki Janakbhai Patel_____

HOMEWORK 1

The purpose of this assignment is a basic overview of the textbook's materials, so you will understand the context of the entire course from the start date.

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		Answer:		Work Cited
1.	Why **the Von Neumann model** is essential in understanding computers ? (Chapter 1)	Major component of the Von Neumann model is CPU, Control Unit and Memory. This model had number of significant improvement over ENIAC design. Two most important is define in following steps. 1) The memory who hold program and data its called stored Program Concept. 2) This is simplified the design and allow using binary for data and instructions its called binary processing of data. Moreover, it also remember the relationship between of ON/OFF nature of switches. In which CPU consist ALU and control unit read the instruction from memory where memory store data and instruction. This model contained each and every important feature which is essential for modern computer that is the reason modern computer use Von Neumann model.		Englander, Irv. *The Architecture of Computer Hardware and System Software An Information Technology Approach*. John Wiley & Sons, 2014.Page No 26-28.
2.	**Numbers:** Please write TWO examples representing the numerical data in any possible base, including binary, hexadecimal and octal, as well as floating point number notations	Decimal: 75 Binary: 1001011 Octal: 113 Hexadecimal: 4B Decimal: 88.40 Binary: 1011000.0110 Octal: 130.3 Hexadecimal: 58.6		
3.	**Data** - Please describe any TWO examples representing different formats of	Object images: - SVG, SWF Bitmap images: - graphical image format (GIF), JPEG		Englander, Irv. *The Architecture of Computer Hardware and System*

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data used for still images (bitmap versus object images), video, audio and alphanumerical data. (Ch 4 p. 100-135)	Video: -DivX, H.264 Audio: -AVI, AAC Alphanumeric: - EBCDIC, ASCII		*Software An Information Technology Approach*. John Wiley & Sons, 2014.Page No 103.
4. **LMC** - Explain the inner workings of the Little Man Computer and its relation with real life computers, including the basics of assembly instructions. (A three-four sentences answer will suffice) Ch 6—p.178-193	A Little Man machine is based on the design of Von Neumann, and works through a progression of guidelines. Frequently known as "application code," or opcode, is the guidance part of the 3-digit code. For Example, 901 where the opcode is 9, and the location is 01. Famous orders incorporate Load, Store, Add, Subtract, Input, output Its relationship with PCs, all things considered, is that they depend on the Von Neumann model		Englander, Irv. *The Architecture of Computer Hardware and System Software An Information Technology Approach*. John Wiley & Sons, 2014. Page No 181-182.
5. **CPU-memory** – Explain how the CPU and memory communicate. Concept of a register (including MAR/MDR). (A three-four sentences answer will suffice) Ch 7 p. 201	The CPU and Memory convey utilizing Registers. Registers are situated inside the CPU. Each register inside the CPU has a reason. Blemish is a register which holds the location of a memory area. MDR is a register which holds the information to be composed to or perused from a memory area.		Englander, Irv. *The Architecture of Computer Hardware and System Software An Information Technology Approach*. John Wiley & Sons, 2014.Page No 199.
6. **Fetch-execute** – What is the fetch-execution ? (Ch 7.4 p. 207)	The main role of a PC is to execute directions. The Fetch execute guidance method includes replicating of information starting with one register then onto the next. fetch – gets the following system order		Englander, Irv. *The Architecture of Computer Hardware and System Software An Information*

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	from the PC's memory decode – decodes what the program is advising the PC to do Execute – completes the mentioned activity Store – spares the outcomes to a Register or Memory		*Technology Approach*. John Wiley & Sons, 2014.Page No 207
7. **Stack** - How the stack is permanently used through any subroutine call to better write code? (Ch 7.13 p. 221)	A stack is a data structure which works on the principle of last in first out. A subroutine is a reusable program module. A fundamental program can call or jump to the subroutine at least multiple times. The stack is utilized in a few different ways when subroutines are called. Ordinarily, the stack is utilized for putting away information when subroutines are called. The stack gives the methods for associating the subroutines to the primary program. Utilizing subroutines spares memory, yet a more prominent advantage is improved program association.		Englander, Irv. *The Architecture of Computer Hardware and System Software An Information Technology Approach*. John Wiley & Sons, 2014.Page No 221
8. **I/O** – Please list different types of Input/Output: Programmed I/O vs Interrupts and explain how they each work, as well as their advantages and disadvantages. (Ch 9.3)	Programmed I/o is a strategy for information move started by the CPU. Since there is a distinction in speeds among CPU and I/o, the CPU needs to hang tight for I/o to be prepared for gathering or transmission of information. The CPU needs to check the status of the I/o module more than once, this is known as surveying. Advantages: Easy to program and comprehend. Disadvantage :Very moderate and corrupts the presentation of the framework.		Englander, Irv. *The Architecture of Computer Hardware and System Software An Information Technology Approach*. John Wiley & Sons, 2014. Page No 273-275.

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	Interrupt I/o : There are sure occasions where ordinary execution of projects must be halted. This is known as hinder Adv: Fast and effective way Disadvantage: Difficult to do program.		
9. **DMA** - How Direct Memory Access works and when it is useful to use it? (Ch 9 p 268)	DMA permits information to be legitimately sent from I/o gadgets to the memory,bypassing the CPU. It is valuable for fast circle moves, since the CPU isn't required during moves ,the CPU can perform different undertakings during that time.		Englander, Irv. *The Architecture of Computer Hardware and System Software An Information Technology Approach*. John Wiley & Sons, 2014.Page No 286
10. **Buses** – Please list the advantages and limitations of different types of buses (serial vs parallel with many examples). Ch 7.5 page 210	The Bus is a physical association that makes it conceivable to moves information between parts in a framework. A sequential transport is a transport where information is moved successively. An equal transport is a transport wherein information is moved at the same time . Sequential transport moves information quicker than equal transport. Sequential transport is simple and modest to execute in a circuit as a result of their little size. Sequential transport transmission is full duplex while equal transport transmission is half duplex.		Englander, Irv. *The Architecture of Computer Hardware and System Software An Information Technology Approach*. John Wiley & Sons, 2014.Page No 210-211

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11. **Peripherals** - How computer peripherals work, including magnetic disk drives (floppy disks, hard drives), optical disk drives (CD-R, CD-RW, DVDROM, DVD+R, DVD-R, DVD+RW, DVD-RW), displays (CRT and LCD monitors) and laser printers and realize why it is important to limit the number of disk-read phases when writing programs. (Ch 10 p. 297)	Fringe gadgets are discretionary gadgets which are discretionary not normal for equipment. Attractive circles are gadgets which use charge cycle to peruse and compose information. The circle comprises of an attractive covering and a mechanical arm which peruses and composes information. Optical circles use laser light or electromagnetic radiation to peruse and compose information on plate. R – Disk can just peruse. RW – Disk can peruse and compose. Showcases are comprised of a huge number of individual squares known as pixels. The quantity of lines * number of pixels is known as goal. In a laser printer a picture is checked electronically utilizing a laser. A photovoltaic drum is electrically charged by the laser any place it must be printed. The drum is then turned over a toner where dark/shading powder sticks over the drum and paper gets toner from drum upon contact. It is essential to restrict number of circle read stages since more number of plates peruses seriously hampers execution. Circles are additionally much more slow than RAM and store.		Englander, Irv. *The Architecture of Computer Hardware and System Software An Information Technology Approach*. John Wiley & Sons, 2014. Page No 297,307,310

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