**Review questions chapter 2**

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| 1. **What is a stored program computer?**   A stored-program computer is a computer that stores program instructions in electronically or optically accessible memory. This contrasts with systems that stored the program instructions with plugboards or similar mechanisms.   1. **What are the four main components of any general-purpose computer?**   The motherboard, central processing unit, hard disk drive and power supply.   1. **At the integrated circuit level, what are the three principal constituents of a computer system?**   Gates, memory cells, and interconnections among the elements.   1. **Explain Moore’s law**.   Moore's law is the observation that the number of transistors in a dense integrated circuit (IC) doubles about every two years.   1. **List and explain the key characteristics of a computer family**.  * **Similar or identical instruction set**: In many cases, the exact same set of machine instructions is supported on all members of the family. Thus, a program that executes on one machine will also execute on any other. In some cases, the lower end of the family has an instruction set that is a subset of that of the top end of the family. This means that programs can move up but not down. * **Similar or identical operating system**: The same basic operating system is available for all family members. In some cases, additional features are added to the higher-end members. * **Increasing speed:** The rate of instruction execution increases in going from lower to higher-end members. * **Increasing number of I/O ports**: In going from lower to higher family members. * **Increasing memory size**: In going from lower to higher family members. * **Increasing cost:** Increasing cost  1. **What is the key distinguishing feature of a microprocessor?**   The key distinguishing factors are speed, number of processors and number of addresses.   1. **Given the memory contents of the IAS computer shown below**,   Address Contents  08A 010FA210FB  08B 010FA0F08D  08C 020FA210FB  **show the assembly language code for the program, starting at address 08A. Explain what this program does.**  **Answer**:   |  |  | | --- | --- | | **Address** | **Contents** | | 08A 08B 08C 08D | LOAD M(0FA) STOR M(0FB) LOAD M(0FA) JUMP +M(08D) LOAD –M(0FA) STOR M(0FB) | |