Assignment-1

Submission Deadline: 15 Dec 2021

(Only handwritten assignments will be accepted)

1. FPGA and ASIC are digital ICs used in different applications. Give two real life examples where we can use either FPGA or ASIC chip with proper justification for particular choice.

FPGA		Justification
Example-1		
Example-2		
ASIC		Justification
Example-1		
Example-2		

2. Use the analogy of given scenario to describe the similarities and difference between microcontroller (microprocessor) systems and programmable logic devices. In this scenario, two different solutions are employed to solve a common problem. Determine which solution is analogous to a microcontroller and which solution is analogous to a programmable logic device. Give proper justification for your choice.

   "*A company have two hiring decision choice: wither hire several specialty-skilled employees to perform various specific tasks (one task per person) or hire a few broadly-skilled people who can be given new instructions and/or training to switch between different tasks as needed*"

3. In the current years, more than 422 million peoples in the world suffer from various critical diseases such as cardiovascular and diabetes which should directly affect the human health. Therefore, continuously monitoring patient health using a real-time environment may be a solution. Design and discuss the structure of Internet of Things (IoT) based Patient Monitoring System in distributed environment.

Also answer following questions with respect to your developed modal.

   a. Which type of processor (RISC /CISC) is suitable for your solution?
   b. Which type of communication channel you require (simplex/duplex/full duplex)? How do you achieve multiple accesses?
   c. Which kind of operating system you prefer for your solution?
   d. Is your design more hardware dependent or software dependent?
   e. List any two limitations of proposed design.

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