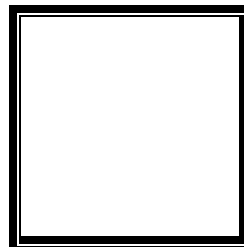**PAMANTASAN NG LUNGSOD NG MAYNILA**
(University of the City of Manila)
Intramuros, Manila

MICROPROCESSOR (LECTURE)

Activity No. 1
Review of Terminologies

Score

Submitted by:
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Saturday 4pm-7pm / CPE 0412-2

Date Submitted
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Submitted to:

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Instruction:

A. Define and discuss the following terminologies related to microprocessor systems:
1. MPU –
    One of the most important parts of modern computing technology is the microprocessor, frequently referred to as a CPU or central processing unit. The circuitry required to serve as the brain and heart of a digital computer's central processor unit is cleverly housed inside this tiny electronic gadget. Being able to quickly and effectively interpret and carry out program instructions, it acts as the computational heart of a computer system. Microprocessors have evolved since the early 1970s, when large-scale integration (LSI) made it possible to fit thousands of transistors and other necessary components onto a tiny silicon chip. This led to the creation of the first microprocessor, the Intel 4004, in 1971. The development of chips with billions of electrical components was made possible during the next decades by very large-scale integration (VLSI), which further transformed microprocessors. The development of small, capable microcomputers was made possible by these potent yet small microprocessors, which have since found use in a variety of industries, from consumer electronics to industrial automation, and have contributed to the advancement of technological advancements all over the world. In essence, the microprocessor has changed the way we live, work, and interact with technology, acting as a catalyst for the digital revolution.

2. MCU –
    The term "microcontroller," or simply "MCU," refers to a small, reasonably priced microprocessor that is designed to carry out precise operations in embedded systems. These specialized gadgets are essential for many applications, including the display of information on microwave ovens and the reception of remote communications. A microcontroller's main component is a processor, which is supported by RAM, ROM, and EPROM forms of memory, allowing it to store and carry out program instructions. The ability of microcontrollers to communicate with external devices and react to certain inputs is improved by the addition of serial ports and peripherals like timers and counters. Microcontroller units are designed to perform a single specific task quickly, as opposed to more sophisticated standalone microprocessors. They are highly suited for activities that need repetitive and automated procedures, frequently carried out in timed loops, because of their single-minded focus. Microcontrollers, which combine versatility, affordability, and efficiency to operate a variety of electronic systems, from home appliances to industrial machinery, are essentially the workhorses of embedded systems.

3. Features of microprocessor and microcontroller
    Microprocessors and microcontrollers are both essential elements in the fields of computers and electronics, yet they each have unique characteristics and have various uses. Microprocessors are mainly designed for broad-application computing operations and come with ample memory and processing capability to run sophisticated programs. They excel at activities demanding great processing performance, such managing multitasking, running a variety of apps, and running operating systems. Microcontrollers, in contrast, are specialized gadgets designed for particular, frequently embedded purposes. They stand out for their small size, low cost, and good power use. Microcontrollers are the best choice for jobs that require precise control and automation, such as controlling home appliances, commercial machinery, or automotive systems since they come with integrated peripherals like timers, counters, and serial ports that are designed to communicate with external components. Microcontrollers excel in reliability and efficiency for dedicated, real-time activities whereas microprocessors offer diversity and processing power for a variety of

computing demands, highlighting their distinct roles in the electronics and computing industries.

4. Applications of microprocessor and microcontroller
Microprocessors and microcontrollers are used in an extensive range of businesses and fields. In desktop and laptop computers, microprocessors are widely used to power operating systems, software programs, and carry out intricate data processing operations. Additionally, they power gaming consoles, smartphones, and tablets, offering connectivity and multimedia experiences. Engine control units (ECUs), infotainment systems, and advanced driver assistance systems (ADAS) are all controlled by microprocessors in the car industry. Meanwhile, microcontrollers are essential components of embedded systems that improve the functioning and efficiency of home appliances like microwaves, refrigerators, and washing machines. They are essential to process control, robotics, industrial automation, and governing equipment. Consumer electronics like remote controls and digital cameras, as well as medical devices like pacemakers and insulin pumps, are all operated by microcontrollers. They are also utilized in IoT devices, aerospace and defense systems, smart home technologies, and other areas, demonstrating their versatility and significance in today's technologically advanced world.

B. Cite your References below.

- https://www.britannica.com/technology/microprocessor
- https://computer.howstuffworks.com/microprocessor.htm
- https://tutorialspoint.com/microprocessor/microprocessor_overview.htm
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