**OHAJI JUDE-THADDEUS**

**15/ENG02/040**

**COMPUTER ENG**

**DIGITAL SYSTEM USING VHDL**

**ASSIGNMENT**

**Q1**

* **ASIC**- Application Specific Integrated Circuits
* **PAL**- Programmable Array Logic
* **PLA**- Programmable Logical Array
* **PLD**- Programmable Logic Device
* **CPLD**- Complex Programmable Logic Device
* **FPGA**- Field Programmable Gate Array

**Q2**

Granularity of Logic block has influence on performance of an FPGA whereby as stated, higher granularity level results in lesser delay between input and output. As granularity of logic block increases, number of levels of logic in critical path decreases, followed by a decrease delay in critical path. On the flip side with increase in granularity level fan out increases and number of switches also increase as each block has more pins. Lastly the length of wire increases with increase in size of logic book.

**Q3**

It is very preferable to use programmable logic device than hardwired because it is programmable and optimized. It is frequently used for safety for instance CPU used for railroad controls by signals are surrounded by safety proof hardwired relay logic as backup. Whereby any outbreak or loss of power will drop the system into a safe state.

And also whereby the speed of action and verifiable operation are necessary, hardwired logic can only do what it was wired to do. It does not depend on a computer program which may have bugs in it thereby by giving it an added advantage

**Q4**

Fused programmed devices are often called OTP (One Time Programmable) whereby the stored program is non-volatile and also read-only. This memory is a special non-volatile memory unlike the rest whereby it permits data to be written to memory just once.

The programmable memory retains its value when there is loss of power which is therefore an added advantage.