# **INSTITUTE OF SPACE TECHNOLOGY**

## **DEPARTMENT OF ELECTRICAL ENGINEERING**

### **109101– Introduction to ICT**

Batch & Section: BS-CS-01 Assessment: Mid Term Prepared by (sign): Muhammad Asad

Student Registration No.: 200901081 Max Time Allowed: Solving One Hour + Uploading Fifteen Minutes 200901058

Student Full Name:

AREEBA FAROOQ Max Points: 40 Approved by (sign): Dr.

* Provide your particulars on this question paper
* All the paper must be solved on the provided question sheet
* Font size must be 11, Type: Times New Roman
* Cheating, by all means, is prohibited and any such attempt may lead to serious consequences.

**Q1.** Suppose you are designing a computer whose processing speed is 107x times faster than the human. If you perform some calculation in 3 months (each:30 days) how much time would it take for that computer to process the calculation in minutes: seconds (mm: ss). [3 points]

MM.SS: 72576sec

**Q2.** A binary number is represented by 101010010010010100100010010110101011 how many Nibbles & Words are required to represent the above binary number. [3 points]

Nibbles: 9nib

Words: 3words

**Q3.** Convert the last four digits of your registration numbers in Octal and Hexadecimal number. [2 points]

Octal 2042

Hexadecimal: 422

**Q4.** A fan in a staircase has two switches, one switch being at the ground floor and the other one at the first floor. The fan can be turned ON and also can be turned OFF by and one of the switches irrespective of the state of the other switch. The logic of switching of the fan resembles. (Encircle) [1 point]

(a) AND gate : The AND gate is a logical gate having two or more inputs and a single output and the AND gate operates on logical multipliruleson rule (b) OR gate

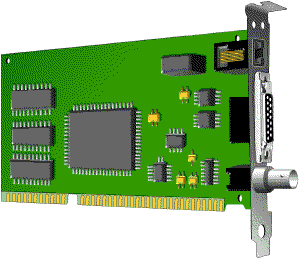
(c) XOR gate (d) NAND gate

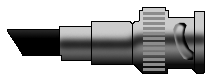
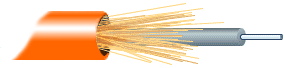
**Q5.** Complete the truth table for the following logic circuit. [5 points]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **A** | **B** | **C** | **D** | **E** |
| 1 | 1 | 1 | 0 | 0 |
| 1 | 0 | 1 | 1 | 1 |
| 0 | 1 | 1 | 0 | 0 |
| 0 | 0 | 0 | 1 | 0 |

**Q6.** Number the following storages with respect to speed in ascending order i.e., from high speed 1 to lowest speed 6. [3 points]

|  |  |
| --- | --- |
| **Storage** | **Speed** |
| Hard Drive | 1 |
| L1 Cache | 2 |
| RAM | 5 |
| L2 Cache | 3 |
| USB | 6 |
| L3 Cache | 4 |

**Q7.** Write the name of following components below them. [2 points]



|  |  |  |  |
| --- | --- | --- | --- |
| coaxial | Optical Fiber | repeater | Ethernet card |

**Q8.** Define the following terms in not more than two lines. [10 points]

|  |  |
| --- | --- |
| Node | A NODE IS A POINT OF INTERSECTION/connection with in a network .in an environment where all the devices are accessible through a network these devices are called Node |
| Execute Cycle | The fetch cycle is the cycle that CPU follows from bootup until computer has shutdown in order to follow instruction |
| RISC | RISC, or Reduced Instruction Set Computer. is a sort of microchip engineering that uses a little, profoundly enhanced arrangement of guidelines, instead of a more particular arrangement of directions frequently found in different kinds of models. |
| CISC | A complex instruction set computer (CISC ) is a computer where single guidelines can execute a few low-level tasks, (for example, a heap from memory, a number-crunching activity, and a memory store) or are equipped for multi-step activities or tending to modes inside single directions. |
| Microcontroller | A microcontroller is a compact integrated circuit designed to govern a specific operation in an embedded system. A typical microcontroller includes a processor, memory and input/output (I/O) peripherals on a single chip |
| Moore’s Law | Moore's Law states that we can expect the speed and capability of our computers to increase every couple of years, and we will pay less for them. |
| Operating System | An Operating System (OS) is an interface between a computer user and computer hardware. An operating system is a software which performs all the basic tasks like file management, memory management, process management, handling input and output, and controlling peripheral devices such as disk drives and printers. |
| Router | A router is a networking device that forwards data packets between computer networks. |
| Switch | A switch is a piece of physical circuit component that governs signal flow |

**Q9.** Consider eight nodes in the Mesh Topology. [3 points]

1. Each node will to connected to how many nodes.

N(n-1)/2 28

1. Total number of links will be:

Nodes will be connected to n(n-1)/2

1. Number of I/O ports will be:n-1 no of ports that is 7

**Q10.** Write the full form of the following Acronyms: [8 points]

|  |  |
| --- | --- |
| WAN | Wide Area Network |
| SMTP | Simple Mail Transfer Protocol |
| POP3 | Post Office Protocol |
| MAN | Metropolitan Area Network |
| DNS | Domain Name System |
| e-mail | Electronic Mail |
| WWW | World Wide Web |
| TCP | Transmission Control Protocol |