# Vavuniya Campus of the University of Jaffna

## First Examination in Information and Communication

## Technology-2015

## First Semester - August / September 2016

## ICT1122 Fundamentals of Computer Systems

### Answer Four questions only

Time Allowed: **Two** hours

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1. (a) Explain why computer is considered as a powerful device. [15%]

   (b) List the types of computers based on their size and briefly describe each of them. [15%]

   (c) Describe the technical evolution of computer generation and give the main circuitry in each of the computer generations. [15%]

   (d) Explain why computer system is considered as an Information System. [25%]

   (e) Briefly describe the usage of computers in each of the following disciplines: [30%]

      i. Music

      ii. Medicine

      iii. Engineering

2. (a) Draw a flow diagram to show the components of a computer system and briefly describe the functions of each of the components. [30%]

   (b) State the important usages of pointing devices in computer technology and list four pointing devices with their functionalities. [15%]

[The question is continued on next page]

(c) Explain how a digital camera can be considered as an input device and briefly describe the two factors that affect the quality of digital camera photos. [2]

(d) A printer produces text and graphics on a physical medium.

    i. List five different environments to print texts and graphics. [1]

    ii. List the types of printers and state the significant difference between them. [1]

    iii. Briefly describe the three important characteristics of printing devices. [1]

3. (a) The CPU executes a series of instructions by looping through a machine cycle. List the four basic operations of a machine cycle. [1]

(b) A student enters a mathematical problem to a computer system. Explain how the central processing unit uses machine cycle to solve the mathematical problem. [3]

(c) Discuss the differences between dual-core and quard-core processors based on their instructions execution. [1]

(d) List three adapter cards used in computer systems and briefly describe the important usages of them. [1]

(e) List the types of computer buses and briefly explain their functionalities. [1]

(f) Describe the usage of a modem and explain how a modem is used to connect internet. [1]

4. Memory Hierarchy is to obtain the highest possible access speed while minimizing the total cost of the memory system.

(a) Draw a diagram of a memory hierarchy composed with several types of memories in terms of storage capacity and speed. [25]

(b) Explain the difference between volatile and nonvolatile memory and give example in each of them. [10]

(c) Explain how RAM (Random Access Memory) works as a bridge between hard disk and processor. [15]

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(d) Describe the process of swapping in virtual memory process. [15%]

(e) Describe the main usage of cache memory and explain how cache operation is executed. [15%]

(f) Briefly describe the significant of formatting a hard disk and list three major characteristics of a hard disk. [20%]

5. (a) Describe the functions of operating systems. [15%]

(b) List the types of operating systems and give three exmples for each of them. [15%]

(c) List three utility programs provided by operating systems and briefly describe each of them. [15%]

(d) The purpose of a IT project is to research the different types of creature (human being) found on a beach at different times of the year. Suggest how each of the following software can be used for the project: [20%]

    i. Word processing software

    ii. Data Base Management Systems

    iii. Presentation software

    iv. Graphical software

(e) List and briefly describe five application software for making communications. [15%]

(f) Physical components of a computer cannot operate without software. Briefly describe each of the following: [15%]

    i. BIOS

    ii. Driver Software

    iii. Device Manager

*******END*******

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