

THE OPEN UNIVERSITY OF SRI LANKA  
 B.Sc. DEGREE PROGRAMME: LEVEL 03  
 FINAL EXAMINATION 2010/2011  
 CPU1140: FUNDAMENTALS OF COMPUTERS  
 DURATION: 02 HOURS ONLY



DATE: 04<sup>th</sup> January, 2011

TIME: 1.30 p.m. – 3.30 p.m.

Answer FOUR questions ONLY.

Q1).

- A) i) *"The general impression about a computer is that it is a versatile machine capable of doing a broad selection of work. But, it also suffers from some limitations".* Comment on this statement.
- ii) Briefly explain the features and drawbacks of *Electronic Numerical Integration and Calculator* with compared to the second generation of computers.
- B) i) Briefly explain the contribution of the register, cache memory and RAM for the speed and the proper functioning of the CPU.
- ii) How does SRAM differ from DRAM? Give two (02) differences.

Q2).

- A) i) List three (03) different mice types with their technologies.
- ii) List four (04) different keyboard layouts.
- iii) Briefly explain five (05) drawbacks of LCD monitors with compared to the CRT monitors.
- B) i) Most digital photocopiers work by *"adhering toner to a light sensitive print drum, then using static electricity to transfer the toner to the printing medium to which it is fused with heat and pressure"*.
- a. Identify the most suitable printer for the above described function.
- b. Explain the functionality of a printer that you mentioned in (i) a) by giving suitable steps.
- ii) What is the main difference between the Solid Ink Printer and the Dye Sublimation Printer in the context of using colours?

Q3).

- A) i) What are the six (06) basic tasks of an operating system?
- ii) Briefly explain the four (04) operating system types by giving suitable examples.
- iii) "Server oriented OS's tend to have certain features in common that make them more suitable for the server environment". Comment on this statement.
- B) Write short notes on the selected three (03) topics given below.
- i) Utility software
  - ii) USB Connector
  - iii) UNIX
  - iv) IDE / Debugger

Q4).

- A) i) Why *Binary* is important?
- ii) Explain why, 1's complement is not suitable for signed integers?
- iii) Briefly explain what ASCII is and why it was led to find other character representations?
- B) i) Reduce the following expression by using the suitable Boolean algebra rules.

$$A+B(A+C)+AC$$

- ii) Identify the following theorem and prove it.

$$\overline{(AB)} = \overline{A} + \overline{B}$$

- iii) Implement the logic circuit for the following equation using NAND gates.

$$F = \overline{A} B + A \overline{B}$$

Q5).

- A) i) Explain, what is a computer network by giving *three (03)* uses of them.
- ii) Briefly explain three (03) types of communication media by giving suitable sketching diagrams.
- iii) The nature of communication is discussed under four (04) concepts. What are they?

- B) i) *"In a Peer-to-peer network, all computers are equal; they all have the same abilities to use resources available on the network"*. By considering the statement given above briefly describe peer-to-peer network stating the advantages and disadvantages.
- ii) What is meant by a *computer network topology*? Name *three (03)* different topologies and explain their features by giving *two (02)* advantages and disadvantages for each of them.

Q6).

- A) i) Write at least one (01) importance of having the following devices in a computer network.
- a) Network Bridge
  - b) Network Hub
  - c) Network Switch
  - d) Network Router
  - e) Network Repeater
- ii) Explain the way of data interchange in the Internet by packet switching, using the standard internet protocol suite (TCP/IP).
- B) i) What is the purpose of having a network firewall?
- ii) Write short notes on the following by giving at least one (01) suitable example.
- a) Domain name
  - b) IP address
  - c) Uniform resource locator

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