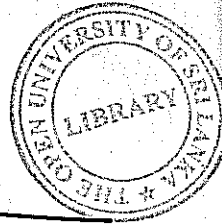


THE OPEN UNIVERSITY OF SRI LANKA  
 B.Sc. DEGREE PROGRAMME: LEVEL 03  
 FINAL EXAMINATION: 2009/2010  
 CPU 1140: FUNDAMENTALS OF COMPUTERS  
 DURATION: TWO HOURS (2 HOURS)



Date: 7<sup>th</sup> January, 2010

Time: 9.30am - 11.30am

Answer **FOUR** questions **ONLY**.  
 Each question carries equal marks.

Q1)

- i. Briefly describe three (03) capabilities and three (03) limitations of a computer.
- ii. Name four (04) parts of a floppy diskette and explain the uses of them.
- iii. Discuss the importance of *Processor Registers* to the function of the CPU other than the main memory or storages in elsewhere.
- iv. Comment on this statement - "*Technology evolution enhanced the computer development*".

Q2)

- i. Briefly explain three (03) types of input devices and give at least three (03) examples for each type.
- ii. Name three (03) types of printer technologies with examples.
- iii. Discuss the differences between *CRT (Cathode Ray Tube)* and *LCD (Liquid Crystal Display)*.
- iv. It is found that the use of any keyboards may cause serious injuries. Discuss the importance of being aware of it as computer professionals.

Q3)

- i. Registered Jack (RJ) is a standardized physical interface. Briefly discuss three (03) standard designs for this type of connectors and their wiring, with at least two (02) points for each.
- ii. Give graphical illustrations on any three (03) of the following connector interfaces.
  - a. DA-15
  - b. S-Video cable connector (Female)
  - c. HDMI cable type A (Female)
  - d. DB13W3 Connector
  - e. DE-9
- iii. State three (03) types of Operating Systems and briefly discuss about their services.
- iv. Describe how the evolution of the technology helped the evolution of programming languages.



Q4)

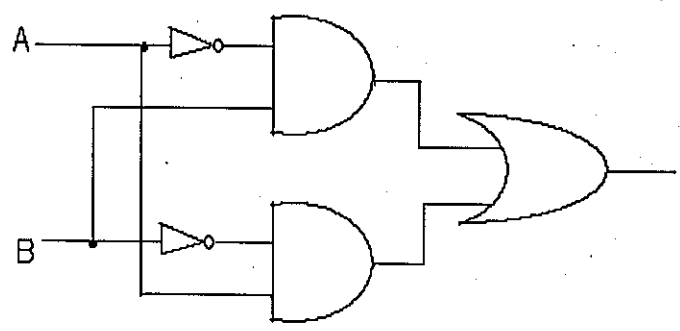
- i. State two (02) restrictions with the binary scheme.
- ii. Convert the following decimal values into binary and present those using nibbles. (Use additional zeros if necessary).
  - a. 371
  - b. 3768
  - c. 210
- iii. Convert following decimal numbers into their equivalent hexadecimal, octal and BCD representations.
  - a. 845
  - b. 335
  - c. 515
- iv. Explain why people are interested in *character representation*. Using at least three (03) *character representation mechanisms* explain how people are benefited from these mechanisms.

Q5)

- i. What is defined as *duality* in the context of laws of Boolean algebra?
- ii. Use the following expression to answer question (a) and (b).

$$[ [ ( A \oplus B ) \overline{AC} ] \overline{AB} ] + A ( B + C )$$

- a. Draw the truth table.
- b. Draw the logic circuit for the implementation of the above expression.
- iii. State five (05) laws of Boolean algebra.
- iv. Realize the following logic gates using NOR gates with related truth tables
  - a. Inverter
  - b. AND
  - c. OR
  - d. NAND
- v. Simplify the following logic circuit using NAND gates.



Q6)

- i. Give three (03) reasons to use computer networks.
- ii. State four(04) differences between a *client/server* system and a *peer to peer* system
- iii. Identify and name the parts of following URL

"http : // www . ou . lk / science / index . php"

- a. Host computer name
- b. Top-level domain name
- c. Directory name
- d. Second-level domain name
- e. File name
- f. Protocol



- iv. "People tend to benefit from a switch over a hub if their home network has four or more computers or if they want to use their home network for applications that generate significant amounts of network traffic". Justify this statement.
- v. The internet interchanges data by packet switching using the standardized internet protocol suite (TCP/IP). Describe the underlined phrase.

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Use

BCD

(03) these