University of Ruhuna - Faculty of Technology

Bachelor of Information & Communication Technology
Level 1 (Semester 1) Examination - July 2017

Department: Information & Communication Technology   **Time: 2 ½ hours**

Course Unit: ICT1113 (Essentials of ICT)

Answer all **five (5)** questions

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1)
  a)
  i) Define a computer.
  ii) The development of computers can be categorized into five generations. Name key technologies used in each of these generations.

  b)
  i) Write down two categories of pointing input devices based on the technology they use. State two examples for each category.
  ii) Name two main types of printers.
  iii) Write down five key features that need to be considered when you are buying a computer monitor.

  c)
  i) Write down two advantages and two disadvantages of cache memory.
  ii) Storage devices can be categorized into two groups according to the physical location. Define these two groups and give two examples for each group.
  iii) Explain the importance of computer backups, giving at least two reasons to take backups and two examples for backup mediums.

2)
  a)
  i) State the three key characteristics of Von Neumann Architecture.
  ii) Write down three differences between special purpose and general purpose configuration of a computer.

  b)
  i) Name the two main steps of the instruction cycle.
  ii) Program Counter (PC) is one of the status and control registers in the CPU. Write down the main purpose of the PC.
  iii) CPU is connected to the other devices of the computer system using system bus. Briefly explain the three main types of buses in the system bus.

  c)
  i) Write down the two main categories of computer software.
  ii) "Security" is one of the main functions of an operating system. Write down three other functions of an operating system.
  iii) Briefly explain what is meant by user authentication, access control and cryptography provided by an operating system for the safety of the data in the computer.

3)
   a) World Wide Web (WWW) uses client-server architecture for its communication.
      i)   Name the standard communication protocol used for sending and receiving HTML documents over the web.
      ii) Explain the role of a web server and write down an example for web server software.
      iii) Explain the purpose of a web client and write down two examples for web client software.
   b)
      i)   Name two protocols which govern the packets of information flow between computers.
      ii) Briefly explain the process happening in a packet switching network.
      iii) Name three services provided by the internet.
   c)
      i)   Write down what is meant by troubleshooting in computers.
      ii) Sound issues are the most common problems anyone can face when working with computers. Write down five troubleshooting techniques for sound issues.

4)
   a)
      i)   Define multiplexing which is a major technique used in computer networking.
      ii) Briefly explain the two main multiplexing methods.
   b)
      i)   Write down two benefits of a computer network.
      ii) Briefly describe the concept "Peer-to-Peer networking".
      iii) LAN (Local Area Network) and WAN (Wide Area Network) are two network types. Differentiate LAN and WAN according to the bandwidth, speed and ownership.
   c)
      i)   Name three methods used to represent characters in computers.
      ii) Write down two disadvantages of Signed Magnitude Method used to represent negative binary numbers in computers.
      iii) Calculate the following using four bit two's complement method
         • (+2) + (+4)
         • (- 2) + (- 4)
         • (+2) + (- 4)
         • (- 2) + (+4)

5)

    a)

        i) Write down the duties of a computer sales representative and a corperate trainer.

        ii) Briefly explain how the certification benefits to each of the following parties.

- Customers
- Employers
- Industry

    b)

        i) Name key security objectives in CIA traid.

        ii) Briefly explain each objective you mentioned in 5) b) i).

        iii) List five good practices/principles which should be considered in security designing.

    c)

        i) Write down what is meant by a computer virus.

        ii) Briefly explain meaning of the unethical action called "plagiarism".

        iii) Assume that you are an IT professional of an IT firm and your firm is a victim of a computer crime. Briefly explain three ethical decisions you have to take in this situation.