The Open University of Sri Lanka
Faculty of Natural Sciences
B.Sc Degree Programme
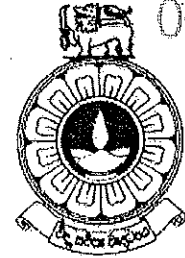
Department	: Computer Science
Level	: 03
Name of the Examination	: Final Examination
Course Code and Title	: **CPU1140/CSU3315**
Academic Year	: 2019/2020
Date	: 13/01/2020
Time	: 9.30a.m - 11.30a.m
Duration	: 02 Hours
Index number	:

General Instructions

1. Read all instructions carefully before answering the questions.

2. This question paper consists of **06** questions in **04** pages.

3. Answer any **04** questions only. All questions carry equal marks.

4. Answer for each question should commence from a new page.

5. Draw fully labelled diagrams where necessary

6. Relevant log tables are provided where necessary.

7. Having any unauthorized documents/ mobile phones in your possession is a punishable offense

8. Use blue or black ink to answer the questions.

9. Circle the number of the questions you answered in the front cover of your Answer script.

10. Clearly state your index number in your answer script

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

Question 01

I. What are the basic components of a Computer System?

II. The study of the anatomy of a computer is necessary to acquire knowledge on the functioning of its inner components.

    a) Draw a simple block diagram to describe the architecture of the computer.
    b) Briefly describe two of them.

III. The term "characteristic" means the capabilities and the limitations of a computer system.

    a) State 3 **capabilities** of a computer and briefly explain two of them.
    b) State 3 **limitations** of a computer and briefly explain two of them.

IV. Classify the computers using **size** and **power** and explain with examples.

Question 02

I. What are the two types of **Storage Devices**? Give two examples for each.

II. a) What is known as **Memory Module**?
    b) Compare 3 types of **ROM** with their functions.

III. a) What are **Optical drivers**?
    b) What are the differences between **Flash drive** and **CD**?

IV. Explain one **Imaging Technology in Television** and point out its advantages and drawbacks.

Question 03

I. a) What is Computer Software?
    b) Explain the 3 major types of Software with suitable examples.

II. Name four types of Operating Systems and give examples for each type.

III. a) State five generations of **Programming Languages**.
    b) What are the differences between **traditional compilers** and **interpreters**?

IV a) What are known as **Application Software**?
    b) What are the uses of **Learning Management Systems**?

Question 04

   I.   Give three reasons for using the binary number system in Digital Computers

   II.   What are the restrictions in Binary?

       a) Convert the following decimal numbers into binary.

         1. 496_{10}

         2. 110.125_{10}

       b) Convert the following decimal numbers into binary and use two's complement representation to perform the operation, using 8-bit representation.

         $97_{10} + (-27_{10})$

       c) Convert the following **decimal numbers** to **hexadecimal** and **octal.**

         1. 37_{10}

         2. 270_{10}

   III. Compare **ASCII** and **BCD** representation

Question 05

   I) Write the product form and sum form of the following **Boolean algebraic laws** using parameter **A, B** and **C.**

       a) Commutative Law
       b) Associative Law
       c) Distributive Law
       d) Redundancy Law

   II) Draw the truth tables for the following logic gates

       a) NAND
       b) NOR
       c) EX-OR
       d) EX-NOR

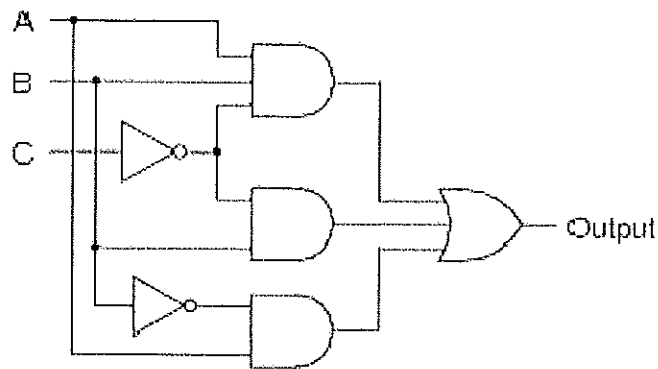   III) Draw **NAND gate** equivalents for the following,

       a) NOT
       b) AND
       c) OR
       d) NOR

IV Simplify the following logic circuit.

Question 06

I. Give two reasons to use Computer Networks.

II. State five differences between a *client/server* system and *peer to peer* system.

III. a. What do you mean by the word **URL**?

   b. Identify the parts of the following URL

   http://www.clearn.ou.ac.lk/course/index.php

IV) i) What is the purpose of having a network firewall?

   ii) Briefly explain the following.

   a. **Internetworking**

   b. **Internet protocols**

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