The Open University of Sri Lanka
B.Sc Degree Programme – Level 03
Department of Mathematics and Computer Science
Final Examination 2015/2016
CPU1140: Fundamentals of Computers

Duration: Two **hours only (2 hours)**

Date: **28.06.2016**   Time: **9.30 am – 11.30 am**

Answer Four (04) Questions

Q1.

i. Drawing diagrams briefly describe five (05) **types of connectors.**
ii. Briefly discuss five (05) advantages of **CRT** monitors.

iii. What are the steps carried out in a **hard disk** when a **Read/Write** command is received?

iv. What are the types of **mice** available for digital computers? Discuss one of them.

Q2.

i. List and briefly discuss five (05) **characteristics of a computer.**

ii. What happened to the computer when technology evolved? Discuss with the aid of **computer generations.**

iii. What are the **components** of a personal computer? Briefly discuss them using a diagram.

iv. Discuss the difference between a **Mainframe** computer and a **Supercomputer.**

Q3.

i. Briefly discuss the relationship between **Computer Software** and **Computer Hardware.**

ii. List **four (04) types of operating systems** and discuss their **features** providing **two (02)** examples.

iii. **Programming Languages** are categorized into **generations.** Briefly discuss each generation with examples.

iv. **Data Base Management System (DBMS)** is an application software. Briefly discuss each **component** of a DBMS.

**Q4.**

i. What is a **Computer Network?** Explain its **uses to an organization.**

ii. Describe briefly **three (03) communication media** and draw **diagrams** for each.

iii. Compare the **Network Routers** and **Network Switches.** (at least **04** points)

iv. What do you understand by **"Internet-working"?**

Q5.

i. Give three reasons for using **binary number system** in **digital computers**?

ii. Convert following numbers into **decimal.**

    a) 11010111011_2

    b) 237_8

    c) $14AD_{16}$

iii. Represent $+13_{10}$ and -13_{10} in the following binary representation formats.

    a) Sign Magnitude

    b) One's Complement

    c) Two's Complement

iv. What is known as **character representation**? Discuss with **examples.**

Q6.
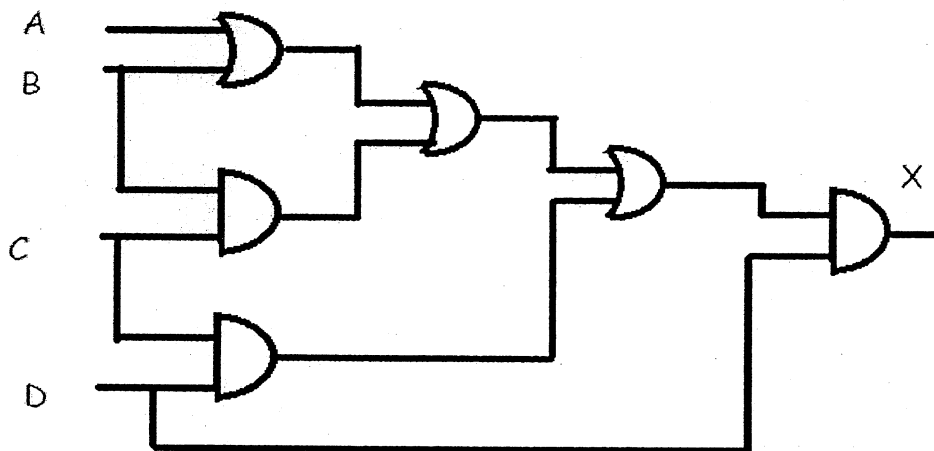
i. Using the above logic circuit, derive the **Boolean equation for X** and **simplify** using **Boolean algebraic rules.**

ii. Draw the **simplified logic circuit.**

iii. Using **universal NAND** gate re-draw the circuit in ii.

iv. What is the use of **Boolean logic** to the **Digital Computer?**