RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES

Bachelor of Science in Applied Sciences
Pre-Semester Examination – February 2023

FDN 1202 – INTRODUCTION TO COMPUTERS

Time: Two (02) hours

- There are four (04) questions in two (02) pages.
- All questions carry equal marks.
- Answer **ALL** questions.

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1. a) The "Analytical Engine" was created by Babbage in 1830. Briefly describe the storage mechanism of analytical engine and why this machine is specific? (05 marks)

   b) "Supercomputers are considered more expensive than others." State the reason and discuss the fields that use supercomputers. (08 marks)

   c) "A computer system contains several different buses and the lines of any bus can be classified into three functional groups." Identify and describe each functional group. (06 marks)

   d) Below is one of the instructions to be executed by the computer. What are the three main components of an instruction?
   ADD A, B (06 marks)

2. a) Explain how an analog sound wave is converted into a digital signal. Illustrate with a diagram. (10 marks)

   b) "ASCII, the American Standard Code for Information Interchange, represents characters in computers". Explain with an example. (05 marks)

c) Perform the following conversions

      i). Convert Binary 1101.101 to its Decimal.
      ii). Convert Binary 10001011 to its Decimal.
      iii).Convert Hexadecimal F27.42 to its Binary.
      iv). Convert Hexadecimal A65F to its Decimal.
      v). Convert Octal 512.35 to its Binary.   (02 x 05 = 10 marks)

3. a) How does a computer understand a program written in English?   (05 marks)

     b) What are the five main ingredients (steps) in the programming process?   (05 marks)

     c) Write down the pseudocode and draw flowcharts for the scenario below:.

        A school will give "pass" mark if the student's marks are more than 50, otherwise "fail". Gi_
        the students' marks as user input and display the grade as "pass" or "fail".   (10 marks)

     d) "System software is designed to manage and control the hardware and other software components of a computer system." Name three (03) types of system software.
                                                     (03 marks)

     e) Mention two (02) characteristics of a good software.   (02 marks)

4. a) Briefly discuss three (03) possible intellectual property protections available for a commercial software.   (06 marks)

     b) What is software piracy?   (03 marks)

     c) What is the main difference between computer viruses and worms?   (03 marks)

     d) Arrange the following network types, HAN, LAN, MAN, WAN, and PAN, in the order of increasing distance of coverage (from the network with the smallest coverage area to the one with the largest coverage area).   (05 marks)

     d) What are the factors that can affect the data transmission capabilities of different transmission media?   (08 marks)

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