



Uva Wellassa University, Sri Lanka
Faculty of Science & Technology
Computer Science & Technology Degree Program
1st Semester Examination Feb/March-2011
CST 302-2 Computer Systems Architecture
CST 303-2 Computer Systems Architecture (Repeat)

NO



Questions. *This section carries 50 marks (Each question carries 25 marks).*

- (1) a. Briefly explain the main difference between the responsibilities of two employee hardware designer and the computer architect. (5 marks)
- b. What are the factors that can be used to measure the performance of a computer system? (5 marks)
- c. Briefly explain the pipelining technique used in modern computers by using a suitable example. (5 marks)
- d. What do you mean by the “addressing modes” of a microprocessor? (5 marks)
- e. The service 40H of the DOS interrupt 21H can be used to print a set of characters through a printer, if the following settings are made. (5 marks)

BX = 04H

CX = Number of characters to be printed.

DX = Offset of the character string

Write **only necessary instructions** to invoke the above service and to print the following character string.

CSTRING DB 'Testing the Printer'

- (2) a. What is the use of cache memory in modern computers? (5 marks)
- b. A cache memory is references five memory blocks, A, B, C, D and E, in the following order:
A; B; C; D; A; B; E; A; B; C; D; E;
Assuming that the cache memory can only store three memory blocks at a given time, draw the content of the cache memory during each reference if least recently used replacement algorithm is used. (5 marks)
- c. Briefly explain the technique called paging in virtual memory. (5 marks)
- d. What is a Protocol in terms of I/O subsystem? (5 marks)
- e. Compare and contrast two general I/O control methods Programmed I/O and Direct Memory Access. (5 marks)

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