FINAL
ALTERNATIVE ASSESSMENT

(COVER PAGE)

Session	:	**April 2020**
Programme	:	Diploma in Computer Science (DCS)
Course	:	**DCS1102: Computer Architecture**
Date of Examination	:	6 August 2020 (Thursday)
Time	:	8.00am – 10.15am Reading Time : Nil
Duration	:	2 Hours 15 Minutes

Special Instructions :

This paper consists of **FOUR (4)** structured questions. Answer ALL the questions. All questions carry equal marks.

Material permitted :

Non-Programmable Scientific Calculator

Materials provided :

Nil

Examiner(s)	:	**Ms Asvhini, Ms Lusiana Syaiful**
Chief Moderator	:	Mr Ryan Tee Ah Ann

*This paper consists of **3** printed pages, including the cover page*

DIPLOMA IN COMPUTER SCIENCE PROGRAMME (DCS)
DCS1102: COMPUTER ARCHITECTURE
FINAL ALTERNATIVE ASSESSMENT: APRIL 2020 SESSION

Instructions: This paper consists of **FOUR (4)** structured questions. Answer ALL the questions. All questions carry equal marks.

Question 1

a) Briefly explain the following terms used for Intel 8086 Microprocessor with appropriate example(s):
   i) PUSH
   ii) POP
   iii) Subroutines

(15 marks)

b) State the outcome of the following operation(s) and comment on the error if there any, in the assembly language mnemonics.
   i) SUB DL, [BX]
   ii) OUT 4FH, BL
   iii) MUL BH
   iv) MOV [95H], [7BH]
   v) MOV DS, SS

(10 marks)

Question 2

a) State and describe briefly with appropriate example(s) the hazards presented by instruction level parallelism.

(12 marks)

b) Explain the following typical assembly language statements:
   i) ADD DATA, 20
   ii) MOV ACCOUNT, 58
   iii) ADD AH, BH
   iv) AND CLASS1, 128

(8 marks)

c) State any **FIVE (5)** advantages of cache memory.

(5 marks)

Question 3

a) i) Define interrupts and briefly explain **THREE (3)** types of interrupts.

(11 marks)

ii) State **TWO (2)** approaches to dealing with multiple interrupts.

(4 marks)

b) An instruction is a command given to a computer to perform a specified operation on some given data and the format in which the instruction known as Instruction format. Explain the significance of different fields of an instruction with an example.

(10 marks)

Question 4

a) The register content for an Intel 8086 microprocessor is as follows:

CS = 4000H, DS = 2000H, SS = 3000H, SI = 5000H, DI = 6000H
BX = 5060H, BP = 7000H, AX = 5022H, CX = 5653H, DX = 8008H

Calculate the physical address of the memory where the operand is stored and the contents of the memory locations in each of the addresses shown below:
(Show working flow where necessary)

i) MOV [SI], AL
ii) MOV [DI+6H], BX
iii) MOV [SI+BX–5H], AX
iv) MOV [DI][BX]+10H, CX
v) MOV [BP][SI]+10H, DX

(15 marks)

b) State and describe the **FIVE (5)** major functions or requirements of an I/O module.

(10 marks)

~ The End ~

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