

**SECTION B: 55 MARKS****BAHAGIAN B: 55 MARKAH****INSTRUCTION:**

This section consists of **TWO (2)** structured questions. Answer **ALL** questions.

**ARAHAN:**

*Bahagian ini mengandungi DUA (2) soalan berstruktur. Jawab SEMUA soalan.*

**QUESTION 1****SOALAN 1**

- |            |   |                         |
|------------|---|-------------------------|
| CLO1<br>C1 | a) Define Cache Memory<br><i>Berikan definisi bagi Cache Memory</i>   | [2 marks]<br>[2 markah] |
| CLO1<br>C2 | b) There are <b>THREE (3)</b> methods for managing input and output called as modes of transfer. Explain each mode of transfer<br><i>Terdapat TIGA (3) kaedah untuk menguruskan input dan output yang dipanggil sebagai mod pemindahan. Terangkan setiap mod pemindahan</i> | [6 marks]<br>[6 markah] |
| CLO2<br>C1 | c) Define sequential logic circuit<br><i>Definisikan litar logik berjujukan</i>   | [2 marks]<br>[2 markah] |
| CLO2<br>C2 | d) Determine <b>TWO (2)</b> basic type of register<br><i>Tentukan DUA (2) jenis daftar</i>  | [2 marks]<br>[2 markah] |

CLO2  
C3

e) Convert the numbering system below :

*Tukarkan sistem nombor berikut :*i.  $E7_{16}$  to decimal *$E7_{16}$  ke perpuluhan*

[3 marks]

[3 markah]

ii.  $0.6875_{10}$  to binary *$0.6875_{10}$  ke perduaan*

[3 marks]

[3 markah]

CLO2  
C3f) Draw logic circuit for  $F = \overline{(\overline{AB})(\overline{A+C})} + \overline{C}$ *Lukiskan litar logik bagi  $F = \overline{(\overline{AB})(\overline{A+C})} + \overline{C}$* 

[6 marks]

[6 markah]

CLO2  
C3

g) Calculate the following computations by using 8-bits 2's complement.

*Kirakan masalah berikut dengan menggunakan 8-bits pelengkap kedua.*

$$5F_{16} - 4C_{16}$$

[7 marks]

[7 markah]

## QUESTION 2

## SOALAN 2

CLO3  
C1

- a) List **TWO (2)** importance of Assembly Language  
*Senaraikan **DUA (2)** kepentingan bahasa himpunan*

[2 marks]

[2 markah]

CLO3  
C2

- b) Assume the data register hold the value as followed. Determine the value of D1 and D2 after the addition execution ADD.B D1,D2  
*Andaikan alat daftar memegang nilai berikut. Tentukan nilai D1 dan D2 selepas pelaksanaan penambahan ADD.B D1,D2 dilaksanakan.*

Before: D1 = 00001234  
D2 = ABCD1222

[2 marks]

[2 markah]

CLO3  
C3

- c) Complete the program based on mathematical equation  
*Lengkapkan program berdasarkan persamaan matematik yang diberikan*

$$(DD17_{16} + 2017_{10}) * NOT AB_{16}$$

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ORG $8000
    i   #D17, D1
MOVE.W   ii  , D2
MOVE.B #AB,   iii  
ADD.W   iv  
  v   D3
  vi   D2, D3
RTS

```

[6 marks]

[6 markah]

CLO3  
C3

- d) Interpret the mnemonic and type of addressing mode for each of the instruction below.

*Terjemahkan jenis mnemonic dan mod pengalamatan bagi setiap arahan di bawah.*

- i. MOVE.B D1, D2
- ii. MULU.W (A1), D1
- iii. ADD #50, D2

[6 marks]  
[6 markah]

CLO1  
C1

- e) Describe **TWO (2)** types of stack operation.

*Terangkan DUA (2) jenis operasi timbunan.*

[4 marks]  
[4 markah]

CLO1  
C2

- f) Given mathematic expression as below

*Diberi persamaan matematik seperti di bawah*

$$(4*(4+5))$$

- i) Identify the Reverse Polish Notation of the equation

*Kenalpasti Reverse Polish Notation bagi persamaan tersebut*

[1 marks]  
[1 markah]

- ii) Describe the stack of Reverse Polish Notation to solve the equation

*Gambarkan timbunan bagi Reverse Polish Notation untuk menyelesaikan persamaan tersebut*

[3 marks]  
[3 markah]

SOALAN TAMAT