SULIT

POLITEKNIK MALAYSIA

BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
KEMENTERIAN PENDIDIKAN MALAYSIA

JABATAN TEKNOLOGI MAKLUMAT & KOMUNIKASI

PEPERIKSAAN AKHIR

SESI JUN 2018

DFC2073: PROGRAMMING FUNDAMENTALS

TARIKH : 28 OKTOBER 2018
MASA : 8.30 PAGI - 10.30 PAGI (2 JAM)

Kertas ini mengandungi **TIGA PULUH DUA** (32) halaman bercetak.
Bahagian A: Objektif (30 soalan)
Bahagian B: Struktur (2 soalan)
Dokumen sokongan yang disertakan : Tiada

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

CLO3
C4

30. Analyse the segment code in **Figure A22**, determine how many times the recursive function called, when the following code is executed.

*Analisa keratan kod pada **Rajah A22**, tentukan berapa kali fungsi rekusif dipanggil, bila kod berikut dilaksanakan.*

```
void my_recursive_function(int n)
{
     if (n == 0)
         return;
         cout << n;
         my_recursive_function(n-
1);
}
int main(){
{
      my_recursive_function(10);
      return 0;
}
```

Figure A22 / *Rajah A22*

A. 9

B. 10

C. 11

D. 12

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
C1

(a) Define the variables below with a suitable data type.

Tentukan pembolehubah di bawah dengan jenis data yang sesuai.

i. Address / Alamat
ii. Student Grades / Gred Pelajar

[2 marks]
[2 markah]

CLO2
C2

(b) Explain the debugging process in a program.

Terangkan proses debugging dalam program.

[2 marks]
[2 markah]

CLO1
C1

(c) State **ONE(1)** example to declare the following:

*Nyatakan **SATU(1)** contoh pengisytiharan untuk yang berikut :*

i. Variable / Pembolehubah
ii. Constant / Pemalar

[2 marks]
[2 markah]

CLO1
C2

(d) i. Given the value of a=4, b=5 and c=2 in **Figure B1**.
State the value of (a*(b-c)) / c

*Diberi nilai a=4, b=5 dan c=2 pada **Rajah B1**.*
Tentukan nilai bagi (a(b-c)) / c*

[2marks]
[2 markah]

```
X= i+j*k-
```

Figure B1/ *Rajah B1*

ii. Based on Figure B1 ,find the value of X , if
i = 5, j = 6, k = 7, n = 3

Berdasarkan kepada Rajah B1, cari nilai bagi X jika
i = 5, j = 6, k = 7, n = 3

[2marks]
[2 markah]

CLO2
C3

(e) Based on **Figure B2**, identify the elements labeled as A, B and C.

*Berdasarkan pada **Rajah B2**, kenalpasti elemen-elemen yang dilabelkan sebagai A, B dan C.*

```
#include <iostream>          A
 const double PI = 3.142;
 using namespace std;
 int main()
 {                           B
       int r;
       double circumference;
       cout << "Please enter the radius :" ;
       cin >> r;

       circumference = 2*PI*r;

       cout << The radius entered is: " << r
       >> endl:
       cout << The circumference calculated
       is: " << circumference << endl;

       system("pause");

       return 0;
       }                       C
```

Figure B2 / *Rajah B2*

[3 marks]
[3 markah]

CLO1
C1

(f) List **TWO(2)** types of control structure.

*Senaraikan **DUA (2)** jenis struktur kawalan*

[2 marks]
[2markah]

CLO2
C2

(g) Demonstrate a suitable if.. else statement for the following problem in **Figure B3**:

*Demontrasikan pernyataan if..else yang sesuai bagi masalah berikut pada **Rajah B3**:*

```
If mark is more then 60,
   print a  message" Very good"
otherwise print a message "Good"


Jika markah lebih daripada 60,
cetak mesej"sangat baik"
sebaliknya cetak mesej "baik"
```

Figure B3 / *Rajah B3*

[2 marks]

[2 markah]

CLO2
C3

(h) Convert the code fragment below to the switch case statement in **Figure B4**.

Tukarkan keratan kod dibawah kepada pernyataan *switch case* pada **Rajah B4**.

```
if (negeri=='k')
  cout<<"kedah";
   else if(negeri == 'J')
     cout<<"Johor";
else
     cout<<"lain-lain negeri";

}
```

Figure B4 / *Rajah B4*

[3 marks]

[3 markah]

CLO3
C4

(i) Complete the syntax for switch...case statement in **Figure B5** below.

*Lengkapkan sintaks bagi kenyataan switch...case dalam **Rajah B5** di bawah.*

```
switch (code)
{
.....'a':
        balance= balance + amount;
        Cout<<"your balance "<< balance;
        .....;
case 'b':
        Balance= balance - amount;
        Cout<<"your balance "<< .....;
             break;

.....:
      Cout<<"code is not allowed !\n";
}
```

Figure B5 / *Rajah B5*

[5 marks]

[5 markah]

QUESTION 2

SOALAN 2

CLO2
C1

(a) Based on the array declaration below, state the output.

Berdasarkan pengistiharan tatasunan di bawah, nyatakan output:

```
int number [7] = {3,2,17,6,10,5}
```

i. cout<< number[1];

ii. cout<< number[4];

iii. cout<< number[5];

iv. cout<< number[6];

[2 marks]

[2 markah]

CLO2
C3

(b) Rewrite a program by using an array to display the letter **ABCDEF**

Tulis semula program dengan menggunakan tatasusunan untuk memaparkan huruf **ABCDEF**

[5 marks]

[5markah]

CLO3
C2

(c) Identify the correct value of x in Figure B6 below, if the program produces output as in **Figure B7**.

*Kenalpasti Rajah B6 di bawah, jika program berkenaan menghasilkan output seperti **Rajah B7**.*

```
#include <iostream>
using namespace std;
int main(){
     int data[2][2] = {{1,2},{4,5}};
     cout << x << endl;
     return 0;
}
```

Figure B6 / *Rajah B6*

Output :

1

Figure B7 / *Rajah B7*

[2 marks]
[2 markah]

CLO3
C3

d) i. Given a diagram that illustrates an array as shown in **Figure B8**. Produce a statement to declare the array.

*Diberi gambarajah mengambarkan tatasusunan seperti pada **Rajah B8**. hasilkan pernyataan untuk mengisytihar tatasusunan berkenaan*

Array Name = number

4	6	8
index[0]	index [1]	index[2]

Figure B8 / *Rajah B8*

[2 marks]
[2 markah]

ii. Based on **Figure B9**, demonstrate a statement to assign the values below :
*Berdasarkan **Rajah B9**, demonstrasikan pernyataan untuk umpukkan nilai-nilai berikut:*

a. birthday with type of date struct
b. day = 13
c. month = 03
d. year = 2000

```
struct date {
        int day;
        int month;
        int year;
};
```

Figure B9 / *Rajah B9*

[4 marks]
[4 markah]

CLO2
C1

(e) Identify the type of function in **Figure B10** below.

*Kenalpasti jenis fungsi pada **Rajah B10** di bawah.*

```
#include <iostream>
using namespace std;
void powerOffTwo(int a){
        int power = 0 ;
        power = a * a;
        cout << " Power Off Two " <<
power << endl;
}

 int powerOffThree(int a){
        int power = 0 ;
        power = a * a * a;
        return power;
  }
```

Figure B10 / *Rajah B10*

[2 marks]
[2 markah]

CLO2
C3

(f) Based on the segment function in Figure B11, determine:

Berdasarkan keratan fungsi dari Rajah B11, tentukan :

i. local variable / *pembolehubah local*

ii. global variable / *pembolehubah global*

iii. formal parameter / *parameter formal*

```
#include <iostream>
using namespace std;
int total = 40,
int bil = 2;
void average(int total, int bil){
        int average = 0 ;
        int amount = 3;
        total = total + amount;
        average = total/bil;
        cout << " Average =  " <<
average << endl;
}
```

Figure B11 / *Rajah B11*

[6 marks]
[6 markah]

(g) Identify the functions from the scenarios described below.

Kenalpasti fungsi dari huraian scenario di bawah.

CLO2
C4

Subfunctions accept two arguments and then return the sub value. This function subtracts two arguments value that were received through the formal parameter.

Fungsi sub menerima dua nilai argumen dan memulangkan nilai sub. Fungsi ini membuat operasi tolak ke atas dua nilai argumen yang diterima melalui parameter formal.

(hints : all values must be int data type)

[5 marks]
[5 markah]

CLO3
C1

(h) Describe the concept of recursion and give an example of its use.

Terangkan konsep rekursif dan beri contoh penggunaannya.

[2 marks]
[2 markah]

SOALAN TAMAT