

SULIT



BAHAGIAN PEPERIKSAAN DAN PENILAIAN  
JABATAN PENDIDIKAN POLITEKNIK  
KEMENTERIAN PENDIDIKAN TINGGI

JABATAN TEKNOLOGI MAKLUMAT & KOMUNIKASI

PEPERIKSAAN AKHIR

SESI JUN 2017

**DFC2073 : PROGRAMMING FUNDAMENTALS**

**TARIKH : 31 OKTOBER 2017**  
**MASA : 8.30 PAGI - 10.30 PAGI (2 JAM)**

Kertas ini mengandungi **DUA PULUH LIMA (25)** halaman bercetak.

Bahagian A: Objektif (30 soalan)

Bahagian B: Struktur (2 soalan)

Dokumen sokongan yang disertakan : Tiada

**JANGAN BUKA KERTAS SOALANINI SEHINGGA DIARAHKAN**

(CLO yang tertera hanya sebagai rujukan)

SULIT



**SECTION A: 45 MARKS****BAHAGIAN A : 45 MARKAH****INSTRUCTION:**

This section consists of **THIRTY (30)** objective questions. Mark your answers in the OMR form provided.

**ARAHAN :**

Bahagian ini mengandungi **TIGA PULUH (30)** soalan objektif. Tandakan jawapan anda di dalam borang OMR yang disediakan.

CLO1  
C1

1. Error that occur when a program with no syntax errors asks the computer to do something that the computer is unable to do.

Ralat yang berlaku apabila sesuatu program yang tidak mempunyai ralat sintaks mengarahkan komputer untuk melakukan sesuatu yang tidak termampu olehnya.

Figure A1/Rajah A1

Select the **CORRECT** answer based on the statement in **Figure A1**.  
*Pilih jawapan yang BETUL berdasarkan pernyataan dalam Rajah A1.*

- A. Run-Time Error  
*Ralat Masa Laksana*
- B. Compile Error  
*Ralat Susunan*
- C. Syntax Error  
*Ralat Sintaks*
- D. Logic Error  
*Ralat Logik*

- CLO2  
C1      2. Select the symbol used at the beginning of a comment.  
*Pilih simbol yang digunakan di permulaan comment.*
- A. ( )  
B. //  
C. <>  
D. “ ”
- CLO1  
C1      3. Identify the valid variable.  
*Kenalpasti pembolehubah yang sah.*
- A. MY AGE  
B. 4\_stu  
C. Scanf  
D. area
- CLO1  
C1      4. “A location in the memory that stores data that never changes during the execution of the program.” Choose the **CORRECT** answer for the statement  
*“Satu lokasi di dalam memori yang menyimpan data yang tidak pernah berubah semasa pelaksanaan program ini.” Pilih jawapan yang **BETUL** bagi pernyataan tersebut.*
- A. Constants  
*Pemalar*  
B. Variables  
*Pembolehubah*  
C. Identifiers  
*Pengecam*  
D. Keywords  
*Kata kunci*

```
#include<iostream.h>
void main()
{
    int num1=20;
    int num2=30;

    int ans=num1+num2;
    cout<<ans;
}
```

Figure A2/ Rajah A2

- CLO2  
C1 5. Identify the output from the program in **Figure A2**.  
*Kenal pasti output untuk aturcara di Rajah A2.*

- A. 40
- B. 50
- C. 30
- D. 20

- CLO2  
C1 6. There are **FIVE** arithmetic operators and every operator have their own precedence.  
Identify the precedence of the arithmetic operators.

*Terdapat **LIMA** pengendali aritmetik dan setiap pengendali mempunyai keutamaan mereka sendiri. Kenal pasti keutamaan pengendali aritmetik.*

- A. \*, /, %, +, -
- B. +, /, %, -, \*
- C. -, +, %, /, \*
- D. +, %, -, /, \*

CLO3  
C2

7.

```
#include<iostream.h>

void main()
{
int A=10;
A= A+100;
cout<< "Value of A is"<< _____;
}
```

Figure A3/Rajah A3

Consider the code program in **Figure A3**. Fill in the blank with the appropriate answer.  
*Pertimbangkan kod program dalam **Rajah A3**. Isi tempat kosong dengan jawapan yang sesuai.*

- A. A
- B. Value
- C. <<
- D. A=A=100

CLO1  
C1

8. Identify which is **NOT** the type of looping control structure.  
*Kenalpasti yang manakah **BUKAN** jenis struktur kawalan gelung.*

- A. For
- B. If....else
- C. While
- D. Do....while

CLO1  
C1

9. Identify the numbers of ‘do....while’ loop which are guaranteed to loop.  
*Kenalpasti bilangan kali ‘do....while’ yang dijamin untuk membuat ulangan.*
- A. 3
  - B. 2
  - C. 1
  - D. 0

CLO2  
C1

10. Choose the **CORRECT** syntax for an if....else statement.

*Pilih sintaks yang **BETUL** bagi kenyataan if...else.*

- A. if { condition } else
- B. if { condition }else(true statement)
- C. if (condition) { true statement} else {false statement}
- D. if else (condition) { true statement} {false statement}

CLO2  
C1

11. Identify the number of repetitions that will occur for the following looping control structure in **Figure A4**.

*Tentukan bilangan pengulangan yang akan berlaku bagi struktur gelung kawalan dalam Rajah A4.*

```
for (int count=0; count<=20; count++)
```

Figure A4 / Rajah A4

- A. 18
- B. 19
- C. 20
- D. 21

```
#include<iostream.h>
main()
{
    for (int a=1; a<=3; a++)
    {
        cout<<endl;
        for (int b=1; b<=a+0; b++)
            cout<< "*\t";
    }
}
```

Figure A5 / Rajah A5

CLO2  
C2

12. Identify the correct output for the program in **Figure A5**.  
*Kenalpasti output yang betul bagi aturcara dalam Rajah A5.*

A.     \*  
      \*\*  
      \*\*\*

B.     \*\*\*  
      \*\*  
      \*

C.     \*\*  
      \*\*\*  
      \*

D.     \*  
      \*  
      \*

```
#include <iostream>
using namespace std;

int main()
{
int n = 4;
while (n<=3)
{
cout<< "value of :\n" << n;
n++;
}
```

Figure A6 / Rajah A6

CLO3  
C1

13. Choose the control structures that have the same concept with the sample code in **Figure A6**.
- Pilih struktur kawalan yang mempunyai konsep yang sama dengan aturcara dalam **Rajah A6**.*
- A. for
  - B. do...while
  - C. nested if
  - D. switch case

```
x = 1;

switch(x)
{
    case 0: cout<<"You";
    case 1: cout<<"I am";
    case 2: cout<<"Clever";
}
```

Figure A7/ Rajah A7

CLO3  
C2

14. Determine the output for the sample code in **Figure A7**.  
*Tentukan output bagi aturcara dalam **Rajah A7**.*

- A. You
- B. I am
- C. You Clever
- D. I amClever

```
int i=10;
int j=10;

while (i<=10)
{
    while (j<=10)
    {
        cout<<i*j<<endl;
        j=j+1;
    }
    i=i+1;
}
```

Figure A8/Rajah A8

- CLO3
- 
- C2
15. Identify the output for the sample code in **Figure A8**.  
*Kenalpasti output bagi aturcara dalam **Rajah A8**.*

- A. 0
- B. 10
- C. 100
- D. 1000

CLO1  
C1

16. Determine how to read the third element in an array ‘height’

*Tentukan bagaimana untuk membaca elemen ketiga dalam array ‘height’.*

- A. height[2]
- B. height[1]
- C. height[3]
- D. height[2+1]

```
struct car
{
    char model[50];
    float price;
} persona, exora;
```

Figure A9 / Rajah A9

CLO1  
C2

17. Based on the structure declaration in **Figure A9**, identify the members’ name for car structure.

*Berdasarkan pengisytiharan struktur dalam **Rajah A9**, kenalpasti nama-nama ahli bagi struktur car.*

- A. persona, exora
- B. model, price
- C. char, float
- D. char model

CLO2  
C1

18. Based on the two dimensional array in **Figure A10/ Rajah A10** below, what is the value of Rectangle[1][3]?

*Berdasarkan tatasusunan di atas, apakah nilai yang terkandung dalam Rectangle[1][3]?*

```
int Rectangle[2][5]={4,3,5,6,7,8,9,10,14,12};
```

Figure A10/ Rajah A10

- A. 8
- B. 6
- C. 14
- D. 12

CLO2  
C2

```
int cgpa={3.5,2.5,2.8,3.2,3.6};  
cgpanum=cgpa[4];
```

Figure A11 / Rajah A11

19. Choose the value in the variable **cgpanum** after statement in **Figure A11** is executed.  
*Pilih nilai pembolehubah **cgpanum** selepas pernyataan dalam **Rajah A11** dilaksanakan.*

- A. 2.5
- B. 2.8
- C. 3.2
- D. 3.6

CLO3  
C3

22. Analyse the following code and choose the output that will be presented.  
*Analisa aturcara di bawah dan tentukan hasil yang akan dipaparkan.*

```
void main( )
{
    int matrix[4][4] = {{1, 2, 3, 4},
                        {4, 5, 6, 7},
                        {8, 9, 10, 11},
                        {12, 13, 14, 15}};

    for (int i = 0; i < 4; i++)
        cout << matrix[i][1] << " ";
}
```

Figure A14/ Rajah A14

- A. 1 2 3 4
- B. 4 5 6 7
- C. 2 5 9 13
- D. 1 4 8 12

CLO2  
C2

20.

```
int a [5] [2] = { {0,3}, {1,2},  
                  {2,4}, {7,6}, {4,8};  
  
cout<<a [3][0];
```

Figure A12/ Rajah A12

Determine the output for the code segment in **Figure A12**.  
*Tentukan output bagi kod segmen dalam Rajah A12.*

- A. 4
- B. 2,4
- C. 7
- D. 7,6

CLO2  
C3

21.

```
float Total = 50.5  
float Tptr;  
Tptr = &Total;
```

Figure A13/ Rajah A13

Based on the segment code in **Figure A13**, interpret the statement to display the value of Total.

*Berdasarkan segmen kod dalam Rajah A13, tafsir pernyataan untuk memaparkan nilai Total.*

- A. cout<<Tptr;
- B. cout<<&Total;
- C. cout<<\*&Total;
- D. cout<<\*Tptr;

```

int num=2,num2;
int *pnum;
pnum = &num;
num2 = num1;
cout << num;

```

Figure A15/Rajah A15

- CLO3 C4 23. Analyze the segment code in **Figure A15** and detect the suitable line code which hold the value of num2.

*Analisa kod segmen pada Rajah A15 dan kenalpasti baris kod yang memegang nilai num2 .*

- A. num2=\*pnum;
- B. \*num1=num2;
- C. num2-\*num1;
- D. &num1=\*pnum;

- CLO1 C1 24. Identify the program execution in the beginning of C++ programming.  
*Kenalpasti pelaksanaan program dalam permulaan aturcara C++.*

- A. main function/ *fungsi utama*
- B. calling function / *fungsi memanggil*
- C. definition function/ *fungsi pengisytiharan*
- D. user-define function / *fungsi takrifan pengguna*

- CLO1 C2 25. Select a declaration of prototype *Display* function which does not return any value and receive two float type parameters.

*Pilih prototaip pengisytiharan bagi fungsi Display yang tidak memulangkan sebarang nilai dan menerima dua parameter berjenis float.*

- A. void Display();
- B. float Display();
- C. float Display(float);
- D. void Display(float,float);

Question 26 to 28 are based on the coding below.

~~Soalan 26 hingga 28 adalah berdasarkan atureara di bawah.~~

```

1 #include <iostream.h>
2
3 int addition (int, int);
4
5 int main ()
6 {
7     int z;
8     z = addition (5,3);
9     cout << "The result is " << z;
10    return 0;
11 }
12
13 int addition (int a, int b)
14 {
15     int r;
16     r=a+b;
17     return (r);
18 }
19
20

```

CLO2  
C1

26. Identify the arguments hold by addition function in the program above.

*Kenalpasti argumen yang dipegang oleh fungsi addition dalam program di atas.*

- A. int a, int b
- B. int a, b
- C. 5,3
- D. a,b

CLO2  
C2

27. Assume that a multiplication function is added to this program. Choose the correct prototype to demonstrate multiplication function does not return a value and will receive two arguments of type integer.

*Anggapkan fungsi “multiplication” ditambah kepada program ini. Pilih prototaip yang betul untuk menunjukkan fungsi “multiplication” tidak mengembalikan apa-apa nilai dan akan menerima dua parameter berjenis integer.*

- A. int multiplication(int,int)
- B. void multiplication(a,b);
- C. void multiplication(int,int);
- D. int multiplication(int,int);

CLO2  
C3

28. Line 3 shows the prototype of function addition. Choose the **BEST** explanation of this prototype.

*Baris ketiga menunjukkan prototaip untuk fungsi addition. Pilih satu antara berikut yang menunjukkan penjelasan yang **TERBAIK** mengenai prototaip tersebut.*

- A. It will receive two arguments.  
*Ia akan menerima dua argumen.*
- B. The prototype is useful to get the sum of two numbers.  
*Prototaip ini amat berguna untuk mendapatkan hasil tambah dua nombor.*
- C. The function will return the int value and accept one parameters of int type.  
*Fungsi tersebut akan memulangkan nilai integer dan menerima satu parameter dari jenis integer.*
- D. The prototype is declared to let the compiler knows that the function which is named as addition will be used in this program.  
*Prototaip ini diisyiharkan supaya compiler tahu terdapat fungsi yang dinamakan addition akan digunakan dalam program ini.*

```
double Jumlah_kos (int, double )
{
    const double cukai = 0.05;
    double jumlah = kuantiti * hargaBrg;
    return (jumlah + jumlah * cukai);
}
```

Figure A16/Rajah 16

CLO3  
C3

29. There are one function defines to calculate the cost of item and it's sale tax total 5%. Choose a value returned by the function if the values for kuantiti=10 and hargaBrg=20.00 based on **Figure A16**.

*Terdapat satu fungsi untuk mengira jumlah kos barang termasuk cukai jualan sebanyak 5%. Pilih nilai yang dipulangkan oleh fungsi, jika nilai kuantiti=10 dan hargaBrg=20.00 berdasarkan **Rajah A16**.*

- A. 2100
- B. 2000
- C. 2001
- D. 1100

```
#include <iostream>
using namespace std;
void fun(int x, int y)
{
    x = 20;
    y = 10;
}
int main()
{
    int x = 10;
    fun(x, x);
    cout << x;
    return 0;
}
```

Figure A17/Rajah A17

- CLO3  
C4      30. Decide the **OUTPUT** if the code is executed in **Figure A17**.  
*Nyatakan **OUTPUT** yang terhasil merujuk kepada kod di **Rajah A17**.*
- A. 10  
B. 20  
C. 1010  
D. 2020

**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) List **THREE (3)** types of error in C++ programming.

*Senaraikan **TIGA (3)** jenis kesalahan di dalam aturcara C++*

[3 marks]

[3 markah]

CLO2

C2

- (b) Explain debugging process in a program

*Terangkan proses debugging dalam program*

[2 marks]

[2 markah]

CLO1

C1

- (c) List **TWO (2)** types of operator used in C++ programming.

*Senaraikan **DUA (2)** jenis operator yang digunakan dalam pengaturcaraan C++.*

[2 marks]

[2 markah]

CLO2  
C1

(d) The following declaration of variable is invalid. Justify the reason.

~~Pengisytiharan pembolehubah berikut adalah tidak sah. Berikan sebabnya.~~

- i. float continue;
- ii. int #price;
- iii. char name.princess;
- iv. double byte;

[4 marks]  
[4 markah]

CLO2  
C2(e) Determine the evaluation for the expression below whether it is **TRUE** or **FALSE** if given  $a = 4$  and  $b = 8$ .*Tentukan penilaian untuk frasa berikut sama ada BETUL atau SALAH jika diberi  $a = 4$  dan  $b = 8$ .*

- i.  $(b == 10) \parallel (a != a)$
- ii.  $!(a == b) \&\& (a > b)$
- iii.  $!(a == 2) \parallel (a < b)$
- iv.  $((a + b > b) \&\& (a == a)) \parallel (b == a)$

[4 marks]  
[4 markah]

CLO1  
C2

(f)

(i) Differentiate between selection and looping control structures.

*Bezakan antara struktur kawalan pilihan dengan struktur kawalan gelungan.*

[2 marks]  
[2markah]

(ii) Write down the syntax for switch ... case statement.

*Tuliskan sintaks untuk pernyataan switch ... case.*

[3 marks]  
[3 markah]

CLO3

C1

siapa  
nama  
kamu

Figure B1/Rajah B1

- (g) Write the program to get an output based on Figure B1.

*Tuliskan aturcara bagi mendapatkan keluaran berdasarkan Rajah B1.*

[3 marks]

[3 markah]

```
#include <iostream>
using namespace std;
int main ( )
{
    inttotal,num,count;

    {
        count = 0;
        while (count < 10)
        {
            total = total + num;
            count++;
        }
    }
}
```

Figure B2/ Rajah B2

CLO3

C1

- (h) Based on Figure B2, convert the while statement into do...while statement.

*Berdasarkan Rajah B2 , tukarkan kenyataan while kepada kenyataan do...while.*

[4 marks]

[4markah]

**QUESTION 2****SOALAN 2**

```
struct DATE → (i)
{
    unsigned char day;
    unsigned char month;
    unsigned short year; } birthday; → (iii)
```

Figure B3 / Rajah B3

- CLO1 C1 (a) Based on Figure B3, identify the items labeled (i), (ii) and (iii).

*Berdasarkan Rajah B3, tentukan item yang telah dilabelkan (i), (ii) dan (iii).*

[3 marks]  
[3 markah]

- CLO1 C1 (b) Give THREE (3) advantages of function.

*Berikan TIGA (3) kelebihan fungsi.*

[3 marks]  
[3 markah]

The following question is based on **Figure B4**.

Soalan berikut adalah berdasarkan **Rajah B4**.

```
int max(int a, int b)
{
    int maxnum;
    if(a>b)
        maxnum=a;
    else
        maxnum=b;
    return maxnum;
}
```

Figure B4 / Rajah B4

CLO1

C2

(c)

(i) Write the **function declaration** when the above function is called.

*Tuliskan pengisytiharan fungsi bagi fungsi di atas apabila dipanggil.*

[1 mark]  
[1 markah]

(ii) List the parameters in this function.

*Senaraikan parameter yang terdapat dalam fungsi ini.*

[1 mark]  
[1 markah]

CLO2

C1

(d) Declare a pointer named ptrA. Assign the address of array named mark to pointer ptrA.

*Isytihar penuding bernama ptrA. Peruntukkan alamat tatasusunan bernama mark kepada penuding ptrA*

[2 marks]  
[2 markah]

CLO2  
C2

- (e) Write a complete structure declaration for STUDENT and attributes as followed:  
name, age and cgpa.

*Tulis pengisytiharan struktur yang lengkap bagi PELAJAR yang mempunyai ciri-ciri seperti berikut:*  
*name, age dan cgpa.*

[2 marks]

[2 markah]

CLO2  
C3

- (f) Identify the output for **Figure B5** shown below.

*Kenalpasti output bagi Rajah B5 di bawah.*

```
#include <iostream.h>
int test (int a, int &b);

int main ()
{
    int a=9, b=4;
    cout<< "the value of a:"<<a<< "and b:"<<b<<endl;
    test (a,b);
}

int test (int a, int &b)
{
    a++;
    b--;
    cout<< "the values of a:"<<a<< "and b:" <<b<<endl;

    return 0;
}
```

Figure B5/ Rajah B5

[4 marks]  
[4 markah]

CLO3

C1

(g) Based on **Figure B6**, identify i, ii and iii.*Berdasarkan Rajah B6, kenalpasti i, ii dan iii.*

```
#include <iostream.h>
void main ()
{
    char letter[_____ i _____] = {'A', 'B', 'C',
'D', 'E', 'F', 'G', 'H', 'I', 'J'};
    for (int i=0; i<10; _____ ii _____){
        cout<<_____ iii _____;
        cout<<endl;}
}
```

Figure B6/Rajah B6

[3 marks]  
[3 markah]CLO3  
C3

(h)

The address of the memory location of x:0012FF75

The content of the pointer x:200

The content of the variable p:200

Figure B7/Rajah B7

Write the program code based on the output in **Figure B7**.*Tuliskan kod program berdasarkan paparan di Rajah B7.*[4 marks]  
[4 markah]

CLO3  
C2

(i)

```
float Harga(float a, float b)
{
    a=a+0.02*b;
    return a;
}
```

Figure B8 / Rajah B8

Based on the function definition in **Figure B8**, write prototype function and give the output if given value of  $a=2$  and value of  $b=1$ .

*Berdasarkan takrifan fungsi dalam rajah B8, tuliskan fungsi prototaip dan berikan output jika nilai  $a=2$  dan nilai  $b = 1$ .*

[2 marks]  
[2 markah]

CLO3  
C4

- (j) Help Ahmad to write a function named **Triangle** that **return float value** and accept two **float parameters** which are **base** and **height**. Next, write the **formula** to calculate the area of triangle in the Triangle function.

*Bantu Ahmad untuk menulis fungsi yang bernama **Triangle** yang memulangkan nilai **float** dan menerima dua parameter **float** iaitu **base** dan **height**. Tuliskan formula untuk mengira luas segitiga di dalam fungsi **Triangle**.*

Area= $\frac{1}{2}$  (base \* height)

[3 marks]  
[3 markah]

SOALAN TAMAT