



**UTM**  
UNIVERSITI TEKNOLOGI MALAYSIA

Sekolah Pendidikan Profesional dan  
Pendidikan Berterusan  
(UTMSPACE)

**FINAL EXAMINATION / PEPERIKSAAN AKHIR  
SEMESTER 2 – SESSION 2015 / 2016  
PROGRAM KERJASAMA**

COURSE CODE : DDPC 1603 / DDC 2133  
*KOD KURSUS*

COURSE NAME : C++ PROGRAMMING / PROGRAMMING II /  
*NAMA KURSUS* *PENGATURCARAAN C++ / PENGATURCARAAN II*

YEAR / PROGRAMME : 1 DDPC / 1 DDPZ / 2 DDC / 2 DDZ  
*TAHUN / PROGRAM*

DURATION : 2 HOURS 30 MINUTES / 2 JAM 30 MINIT  
*TEMPOH*

DATE : APRIL 2016  
*TARIKH*

INSTRUCTION/ARAHAN :

1. Answer **ALL** questions in the space provided  
*Jawab SEMUA soalan pada ruangan yang disediakan*
2. Candidates are required to follow all instruction given out by the examination invigilators.  
*Calon dikehendaki mematuhi semua arahan daripada penyelia peperiksaan.*

( You are required to write your name and your lecturer's name on your answer script )  
( *Pelajar dikehendaki tuliskan nama dan nama pensyarah pada skrip jawapan* )

|                                   |   |       |
|-----------------------------------|---|-------|
| NAME / NAMA                       | : | ..... |
| I.C NO. / NO. K/PENGENALAN        | : | ..... |
| YEAR / COURSE<br>TAHUN / KURSUS   | : | ..... |
| COLLEGE NAME<br>NAMA KOLEJ        | : | ..... |
| LECTURER'S NAME<br>NAMA PENSYARAH | : | ..... |

This examination paper consists of ...15... pages including the cover  
*Kertas soalan ini mengandungi .....15..... muka surat termasuk kulit hadapan*

**SECTION A: STRUCTURED QUESTIONS [70 Marks]**

**BAHAGIAN A: SOALAN BERSTRUKTUR [70 Markah]**

Answer all questions at the space provided.

*Jawab semua soalan pada ruang jawapan yang disediakan*

1. Given below is a C++ program that will read data until end of file from a file inData.txt and write the output to the output file outData.txt. The output contains the data read and will display whether the data read is positive or negative. Complete the program below. **[8 M]**

*Diberi di bawah adalah satu aturcara C++ yang akan membaca data sehingga tamat fail data dari fail inData.txt dan tulis output kepada fail outData.txt. Output mengandungi data yang dibaca dan memapar sama ada data yang dibaca adalah positif atau negatif. Lengkapkan aturcara di bawah.*

```
#include <iostream>
_____
using namespace std ;
int main ()
{
int nom;
_____ ; // to declare the file stream variables
_____ ;

_____ ; // Associate the file stream variables with the
_____ ; // input/output sources

while ( _____ ) // input until end of file {
    // to test whether input is positive or negative.
    if ( _____ )
        outData<< nom << " data adalah positif" <<endl;
    else
        outData<< nom << " data adalah negatif" <<endl;
}
inData.close();
outData.close();
return 0;
}
```

2. (a). What is the output of the following program?

[4 M]

*Apakah output bagi aturcara berikut?*

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

void one(int x, int& y);
void two(int& s, int t);

int main()
{
    int u = 1;
    int v = 2;

    one(u, v);
    cout << u << " " << v << endl;
    two(u, v);
    cout << u << " " << v << endl;

    return 0;
}

void one(int x, int& y)
{
    int a;

    a = x;
    x = y;
    y = a;
}

void two(int& s, int t)
{
    int b;

    b = s - t;
    s = t + b + 2;
    t = 4 * b;
}
```

**Answer / Jawapan:**

- (b) Write the function definition to find the largest of two numbers input. Given below is the program **main** with the calling function. [6 M]

*Tuliskan definisi fungsi untuk mencari nombor terbesar daripada dua nombor input. Diberi di bawah aturcara **main** berserta dengan panggilan fungsi.*

```
#include <iostream>
using namespace std;
void big(double *x, double *y, double *besar);

int main () {
    double a =20.0; double b=40.0; double terbesar;
    big(&a, &b, &terbesar);    // calling function
    cout <<" The largest is" << terbesar << endl;

    return 0;
}
```

**Answer / Jawapan:**

3. Given below is a program fragment that uses structures. Answer the following questions.

*Diberi di bawah satu keratan aturcara yang menggunakan struktur. Jawab soalan-soalan berikut.*

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

int main ()
{
    struct studentType {
        string name;
        int testScores;
        int programmingScores;
        double GPA;
    };

    studentType newStudent;
    studentType Student;

    .
    .
    .

    return 0;
}
```

Write statements to do the following:

*Tulis pernyataan untuk melakukan berikut:*

- (a) To initialize GPA of newStudent to 0.0. and name to FATIR.

[3 M]

*Untuk memberi nilai awalan bagi newStudent kepada 0.0 dan name kepada FATIR.*

**Answer / Jawapan:**

- (b) Write the statement to read input for testScore and programmingScore for newStudent.

[3 M]

*Tuliskan pernyataan untuk membaca input bagi testScore dan programmingScore bagi newStudent.*

**Answer / Jawapan:**

- (c) Suppose `score` is a variable of type `int`. Write the statement to compute the total of `testScore` and `programmingScore` and assigned to `score`. [3 M]

*Katakan `score` adalah satu pembolehubah berjenis `int`. Tuliskan pernyataan untuk mengira jumlah bagi `testScore` and `programmingScore` dan umpukkan kepada `score`.*

**Answer / Jawapan:**

4. (a) Given the following declaration: [8 M]

*Diberi pengisytiharan berikut:*

```
enum vegetables {carrot =2, cucumber, cabbage} ;  
cout << "Enter type of vegetables(2 for carrot, 3 for cucumber, 4  
for cabbage): ";  
int vegetype;
```

By using the above declaration, write the program fragment to read the vegetables and use the **switch...case** to display the following output.

*Dengan menggunakan pengisytiharan di atas, tuliskan keratan aturcara unuk membaca sayur-sayuran dan gunakan **switch...case** untuk memaparkan output berikut.*

| Type of vegetables entered<br><i>Jenis sayur-sayuran dimasukkan</i> | Output displayed<br><i>Output yang dipaparkan</i> |
|---|---|
| carrot  | The vegetable is CARROT                           |
| cucumber  | The vegetable is CUCUMBER                         |
| cabbage   | The vegetable is CABBAGE                          |
| Others ( default ) / <i>lain-lain (lalai)</i>                       | Try Again   |

**Answer / Jawapan:**

(b) What is the output of the following program fragment?

[5 M]

*Apakah output dari keratan aturcara berikut?*

```
#include <iostream>
using namespace std;
int main(){

enum courses {ALGEBRA, BASIC, PASCAL, PHILOSOPHY, ANALYSIS};
courses registered, books, major;

registered = ALGEBRA;
books = PHILOSOPHY;
major = ANALYSIS;

cout << registered << " " << books << endl;
cout << books << " " << major << endl;
return 0;}
```

**Answer / Jawapan:**

5. (a) Suppose you have the following statements, show the output.

[6 M]

*Katakan anda mempunyai pernyataan berikut, tunjukkan outputnya.*

```
#include <iostream>
#include <cstring>
using namespace std;
int main ()
{
char str1[10] = "Hello";
char str2[10] = "World";
char str3[10];
int len ;

// copy str1 into str3
strcpy( str3, str1);
cout << "strcpy( str3, str1) : " << str3 << endl;

// concatenates str1 and str2
strcat( str1, str2);
cout << "strcat( str1, str2): " << str1 << endl;

// total length of str1 after concatenation
len = strlen(str1);
cout << "strlen(str1) : " << len << endl;

return 0; }
```

**Answer / Jawapan:**

(b) Read the following statements:

[4 M]

*Baca pernyataan-pernyataan berikut:*

```
int i, j=25;
int *pi, *pj= &j;
*pj = j +5;
i=*pj + 5;
pi=pj;
*pi=i+j;
```

(i) What is the value of \*pj?

*Apakah nilai \*pj?*

**Answer / Jawaban:**

(ii) What is the value of \*pi?

*Apakah nilai yang diumpukkan ke \*pi?*

**Answer / Jawaban:**

6. Given the data definition as below:

*Diberi takrifan data seperti berikut.*

```
#define N 3
int a[N] = {2,4,5};
int b[N] = {6,2,3};
int c[N], d[N][N];
int i, j;
```

(a) What is the value of c after the program segment below is executed?

[3 M]

*Apakah nilai c selepas segmen aturcara berikut dilaksanakan?*

```
for (i=0; i <N; i++)
    c[i] = a[i] *b[i];
```

**Answers / Jawaban:**



(b) What is the value of *d* after the program segment below is executed?

[4 M]

*Apakah nilai d selepas segmen aturcara berikut dilaksanakan?*

```
for (i=0; i <N; i++){  
    for (j=0; j <N; j++){  
        d[i][j] = a[i] *b[i]; }  
}
```

**Answers / Jawapan:**

(c) Write a nested **for** loop statement that compute the sum and average value of the elements in 2 dimensional array given below. [5 M]

*Tulis pernyataan gelung **for** bersarang yang mengira jumlah dan purata nilai-nilai bagi elemen-elemen tatasusunan 2 dimensi berikut.*

Array **LIST** / Tatasusunan **LIST**

|    |    |
|----|----|
| 10 | 40 |
| 20 | 50 |
| 30 | 60 |

**Answers / Jawapan:**

7. Show the output of the following program coding if input are 4, 6 and 2014.

[8 M]

*Tunjukkan output bagi kod aturcara jika input adalah 4, 6 dan 2014.*

```
#include <iostream>
using namespace std;
class date
{
int month; int day; int year;
public:
date (int month = 1, int day = 1, int year = 2001)
{
date::month = month;
date::day = day;
date::year = year;
};
void showDate();
~date() {}
};
void date::showDate() {

cout << month << "/" << day << "/" << year << endl; }

int main() {
int month; int day; int year;

string monthName[12] =
{"January", "February", "March", "April", "May", "June", "July",
"August", "September", "October", "November", "December"};

cout << "Enter month (between 1-12)" << endl;
cin >> month;
if (month > 12 || month < 1) {
month = 1; }

cout << "Enter date (between 1 to 31)" << endl;
cin >> day;
if (day > 31 || day < 1) {
day = 1; }

cout << "Enter year (Between 1900 until 2014)" << endl;
cin >> year;
if (year > 2014 || year < 1900) {
year = 2001; }

date newDate(month, day, year);
newDate.showDate();

cout << monthName[month-1] << " " << day << ", " << year << endl;
cout << day << " " << monthName[month-1] << " " << year << endl;
return 0; }
```

**Answer / Jawapan:**

**SECTION B PROGRAMMING QUESTION [30 Marks]**

**BAHAGIAN B: SOALAN PENGATURCARAAN [30 Markah]**

**Instruction: Programming question. Answer the question in the space provided.**

**Arahan: Soalan pengaturcaraan. Jawab pada ruang jawapan yang disediakan.**

1. Write a complete C++ program that convert inches into centimeters for N numbers. One inch is 2.54 centimeters. Use three functions below:

*readData* – reads the input in inch and return the value to main().

*convert* – converts the input inch into centimeter and return it to main().

*display* – prints out the centimeter value.

**[10 M]**

*Tulis satu aturcara C++ yang lengkap yang menukar inci kepada sentimeter bagi N nombor-nombor. Satu inci adalah 2.54 sentimeter. Gunakan tiga fungsi berikut:*

*readData* – membaca input dalam inci dan memulangkan nilai kepada main().

*convert* – menukar input inci kepada sentimeter dan pulang nilai kepada main().

*display* – mencetak nilai sentimeter.

**Answer / Jawapan:**

2. Write a C++ program using **struct** that have the following components : name, course code, test score and programming score for a student. The program must be able to read the name, course code, test score and programming score for a student. The program must be able to determine the course grade (course grade = (programming score + test score/2)) for the student. Display the output. Use the following table below to get the course grade:

[10 M]

*Tuliskan satu aturcara C++ menggunakan **struct** yang mempunyai komponen berikut: name, course code, test score dan programming score bagi seorang pelajar. Aturcara hendaklah boleh membaca name, course code, test score, programming score dan course grade bagi seorang pelajar. Aturcara boleh menentukan gred kursus (course grade = (programming score + test score/2) ) bagi pelajar. Paparkan output. Gunakan jadual berikut untuk mendapat gred kursus.*

| (course grade = programming score + test score/2) | Course grade / Gred kursus |
|---|----------------------------|
| >90   | A                          |
| >=70  | B                          |
| >= 50   | C                          |
| Below 50  | F                          |

**Answer / Jawapan:**

3. Write a C++ array program that can read and store 10 values in one dimensional array. Sort the input values in ascending order and display the output. [10 M]

*Tuliskan satu aturcara tatasusunan C++ untuk membaca dan menyimpan 10 nilai-nilai ke dalam tatasusunan 1 dimensi. Isih nilai-nilai menurut susunan menaik dan paparkan output.*

**Answer / Jawapan:**

**END OF QUESTION / SOALAN TAMAT**