



**UTM**  
UNIVERSITI TEKNOLOGI MALAYSIA

Sekolah Pendidikan Profesional dan  
Pendidikan Berterusan  
(UTMSPACE)

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

COURSE CODE : DDPK 1012 / DDC 1012  
KOD KURSUS

COURSE NAME : PROGRAMMING /  
NAMA KURSUS : PENGATURCARAAN

YEAR / PROGRAMME : 1 DDPB / DDPE / DDPK / DDPP  
TAHUN / PROGRAM

DURATION : 2 HOURS / 2 JAM  
TEMPOH

DATE : APRIL 2016  
TARIKH

INSTRUCTION/ARAHAN :

1. The question paper consists of 3 section: A , B and C.  
*Kertas soalan terdiri daripada 3 bahagian : A, B, dan C.*
2. Answer **ALL** questions in the question paper  
*Jawab **SEMUA** soalan dalam kertas soalan.*
3. 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 TAHUN / KURSUS	:	.....
COLLEGE NAME NAMA KOLEJ	:	.....
LECTURER'S NAME NAMA PENSYARAH	:	.....

This examination paper consists of ...12... pages including the cover  
*Kertas soalan ini mengandungi .....12..... muka surat termasuk kulit hadapan*

SECTION A [30 Marks] / Bahagian A [30 Markah]

Instruction: Answer all questions with the most suitable answer in the spaces provided.

Arahan: Jawab semua soalan dengan jawapan yang paling sesuai pada ruang jawapan yang disediakan.

1. Briefly explain the difference between each of the following pairs of concepts: [6 M]

*Terangkan secara ringkas perbezaan antara konsep setiap pasangan berikut:*

- a) Application software and system software / *Perisian aplikasi dan perisian sistem*
- b) Algorithm and program / *Algoritma dan program*
- c) Memory and secondary storage / *Memori dan storan sekunder*

Answer / *Jawapan:*

- a) \_\_\_\_\_  
\_\_\_\_\_
- b) \_\_\_\_\_  
\_\_\_\_\_
- c) \_\_\_\_\_  
\_\_\_\_\_

2. List the first four steps of the software development method. [6 M]

*Senaraikan empat langkah pertama dalam kaedah pembangunan perisian.*

Answer / *Jawapan:*

- a) \_\_\_\_\_
- b) \_\_\_\_\_
- c) \_\_\_\_\_
- d) \_\_\_\_\_

3. Fill in the blanks in each of the following: [6 M]

*Isikan tempat kosong bagi yang berikut:*

- a) Every C program begins execution at the \_\_\_\_\_ function.  
*Setiap program C bermula pelaksanaan pada fungsi \_\_\_\_\_*
- b) In C program, a(n) \_\_\_\_\_ function reads data from input device.  
*Dalam program C, fungsi \_\_\_\_\_ membaca data daripada peranti input.*
- c) The processor \_\_\_\_\_ includes the content of the standard input / output header in the C program.  
*Pemproses \_\_\_\_\_ memasukkan kandungan pengepala input / output piawai dalam program C.*
- d) In C program, comment begins with /\* and ends with \_\_\_\_\_.  
*Dalam program C, komen mula dengan /\* dan berakhir dengan \_\_\_\_\_.*

4. Evaluate the following logical expressions which  $x = \text{false}$ ,  $y = \text{false}$  and  $z = \text{true}$ . Give the answers are either true or false. [6 M]

*Nilaiikan ungkapan logikal yang berikut di mana  $x = \text{palsu}$ ,  $y = \text{palsu}$  dan  $z = \text{true}$ . Berikan jawapan samada benar atau palsu.*

- a)  $!(x || y) || z$
- b)  $x \&\& y \&\& z$
- c)  $x || (y \&\& (x || z))$
- d)  $x \&\& y || !z$

**Answer / Jawapan:**

- a) \_\_\_\_\_
- b) \_\_\_\_\_
- c) \_\_\_\_\_
- d) \_\_\_\_\_

5. Briefly describe the purpose of the following to create user-defined function in C program. [6 M]

*Terangkan secara ringkas tujuan yang berikut untuk mencipta fungsi takrifan pengguna dalam program C.*

- a) Function Definition / *Definisi Fungsi*
- b) Function Prototype / *Prototaip Fungsi*
- c) Function Call / *Panggilan Fungsi*

**Answer / Jawapan:**

- a) \_\_\_\_\_  
\_\_\_\_\_
- b) \_\_\_\_\_  
\_\_\_\_\_
- c) \_\_\_\_\_  
\_\_\_\_\_

**SECTION B [55 Marks] / Bahagian B [55 Markah]**

**Instruction: Answer all questions in the space provided.**

**Arahan: Jawab semua soalan pada ruang jawapan yang disediakan.**

1. Draw a flowchart to count and print the total numbers that are above average among five numbers entered by the user. **[10 M]**

*Lukis satu cartalir untuk mengira dan mencetak jumlah nombor yang melebihi purata antara lima nombor yang dimasukkan oleh pengguna.*

**Answer / Jawapan:**



2. Identify and correct the errors in the following program fragment.

Kenal pasti dan betulkan ralat dalam keratan program yang berikut:

```
1  #include <stdio.h>
2  int main(void) {
3      double kelajuan, jarak, masa
4      print("Enter distance and time:");
5      scanf("%lf%ld", jarak, masa);
6      kelajuan = jarak / masa;
7      print("Speed is ");
8  }
```

Answer / Jawapan:

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3. Answer all questions from (a) to (c) based on the given requirements below:

Jawab semua soalan daripada (a) sehingga (c) berdasarkan kepada keperluan yang diberikan di bawah:

a) Convert the following mathematical expressions to the C statement. Use functions from **math.h** that represents square root and power. [4 M]

Tukar ungkapan matematik berikut kepada pernyataan C. Guna fungsi-fungsi daripada **math.h** untuk mewakili punca kuasa dua dan kuasa.

i. 
$$v = \frac{5J^2v}{v + 2} - 16$$

ii. 
$$\text{area} = \sqrt{s(s-s_1)(s-s_2)(s-s_3)}$$

Answer / Jawapan:

i. \_\_\_\_\_

ii. \_\_\_\_\_

b) Given the variables a, b and c are 'Z', 400.123 and 100, respectively. Write a C statement that will display the following output. (For clarity, a ■ denotes a blank space.) [4 M]

Diberikan pembolehubah a, b dan c adalah 'Z', 400.123 dan 100 masing-masingnya, Tulis pernyataan C yang akan memaparkan output yang berikut. (Untuk kejelasan, ■ menandakan satu ruang kosong.)

■■■Z■■■■■■400.12■■100

Answer / Jawapan:

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What is the output of the following C program fragment:

[3 M]

Apakah output bagi keratan program C berikut:

```
#include <stdio.h>
void main() {
    int x = 25, y = 10, z = 30;
    if (x < 25 && y <=30){
        z = z - x;
        y = y + x;
    }
    else if (x > 25 || y < 20)
        z = z - y;
    else
        z = z - y * x;
    printf(" x = %d, y = %d, z = %d", x, y, z);
}
```

Answer / Jawaban:

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4. Given the following program fragment. Answer questions (a) and (b).

Diberikan keratan program berikut. Jawab soalan (a) dan (b).

```
int y, val, num = 9 ;
printf("Masukkan nilai");
scanf("%d", &val) ;
y = num % val;
switch (val) {
    case 2:
    case 3:
        if (y == 0)
            printf ("%d is divisible by 2 or 3", num);
        else
            printf ("%d is not divisible by 2", num);
    case 4 :
        if (y != 0)
            printf ("%d is not divisible by 5", num);
        break ;
    default :
        printf("invalid" );
}
```

- a) What is the output that will be displayed if a user entered the following values:

[4 M]

*Apakah output yang akan dipaparkan sekiranya pengguna memasukkan nilai-nilai berikut:*

Input	Output
2	
3	
5	

- b) Rewrite the program using multiple selection **if..else if** statements.

[6 M]

*Tulis semula program tersebut menggunakan pernyataan pelbagai pilihan **if..else if**.*

**Answer / Jawapan:**

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

[5 M]

Apakah output bagi keratan program C yang berikut?

```
int value = 42;
do {
    printf("The value is %d ", value);
    if (value <= 20)
        break;
    value = value - 6;
} while (value > 18);
printf("The last value is %d ", value);
```

Answer / Jawapan:

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6. Write a function named **computeTotalSales()** that accepts an **integer** argument named **itemTypes** from **main()**. The function will ask a user to enter quantity of item and then calculates the total sales by multiplying the quantity with the item's price. The price per item can be determined based on the type of item as shown in table below. The function should return the total sales to the **main()** program. [9 M]

Tulis satu fungsi bernama **computeTotalSales()** yang menerima satu argumen **integer** bernama **itemTypes** dari **main()**. Fungsi ini akan meminta pengguna untuk memasukkan kuantiti item dan kemudian mengira jumlah jualan dengan mendarabkan kuantiti dengan harga item. Harga per item boleh ditentukan berdasarkan kepada jenis item seperti ditunjukkan dalam jadual di bawah. Fungsi perlu memulangkan jumlah jualan kepada aturcara **main()**.

Type of Item / Jenis Item (itemTypes)	Price Per Item / Harga per Item (RM)
1	150.00
2	299.00
3	599.00

Answer / Jawapan:

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**SECTION C [15 Marks] / BAHAGIAN C [15 Markah]**

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

**Arahan: Jawab soalan pada ruang jawapan yang disediakan.**

Write a complete C program that prompts the user to enter the total point earned and the total credit taken for N students. The number of student (N) is entered by the user. Your program should perform the following tasks:

- Find cumulative point average (CPA) by divided the total point earned with the total credits taken.
- Count and print the numbers of students with good pass (KB), the number of students with conditional pass (KS) and the number of students failed (KG). The academic standing can be determined based on the Table 1.
- Find and print the average of all students' CPA.

Tulis satu program C yang mengarahkan pengguna memasukkan jumlah mata nilai yang diperolehi dan jumlah kredit yang diambil bagi N pelajar. Bilangan pelajar (N) dimasukkan oleh pengguna. Program anda perlu menjalankan tugas-tugas yang berikut:

- Cari purata mata nilai terkumpul (CPA) dengan membahagikan jumlah mata nilai yang diperolehi dengan jumlah kredit yang diambil.
- Kira dan cetak bilangan pelajar dengan kedudukan baik(KB), bilangan pelajar dengan kedudukan bersyarat(KS) dan bilangan pelajar yang gagal (KG). Kedudukan akademik boleh ditentukan berdasarkan Jadual 1.
- Cari dan cetak purata CPA semua pelajar.

CPA	Academic Standing / Kedudukan Akademik
$CPA \geq 2.00$	Good Pass / Kedudukan baik
$1.70 \leq CPA < 2.00$	Conditional Pass / Kedudukan Bersyarat
$CPA < 1.70$	Failed / Kedudukan Gagal

Table 1 : Academic Standing / Jadual 1: Kedudukan Akademik

**Answer / Jawapan:**

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