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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2015/2016**

COURSE NAME : COMPUTER PROGRAMMING
COURSE CODE : DAR 10103
PROGRAMME : 1 DAR
EXAMINATION DATE : DECEMBER 2015/ JANUARY
2016
MASA : 2 HOURS 30 MINUTES
ARAHAN : PART A
ANSWER ALL QUESTIONS.

PART B
ANSWER **ONE (1)** QUESTION
ONLY.

THIS QUESTION PAPER CONSISTS OF **NINE (9)** PAGES

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PART A

Q1 (a) State whether each of the following declaration is **TRUE** or **FALSE**.

- (i) `int c/d;`
- (ii) `int Batu-Pahat;`
- (iii) `double res_value;`
- (iv) `float amount_RM;`
- (v) `char abc[3], def[3];`

(5 marks)

(b) Find any errors in programme below:

```
/* Programme Q1(b)*/
#include<stdio.h>
void main();
    integer x;
    printf("Enter an integer: ",x);
    scanf("%f",&x)

    if (x = 1)
        printf("Case 1");
    else if (x == 2)
        printf("Case 2");
    else
        printf("Other cases");
}
```

(5 marks)

(c) Produce the output of each statement after it is performed.

- (i) `7 * 5 + 3;`
- (ii) `3 + 8 / 2;`
- (iii) `sqrt(4 + 5);`
- (iv) `5 % 3 + 2;`
- (v) `5 + 2 * 6 - 4 / 2;`

(5 marks)

Q2 (a) Write the output produced by the following programmes below:

(i)

```
/*Programme Q2(a)(i)*/
#include <stdio.h>
void main ()
{
    int i;
    for (i=1;i<6;i++)
    {
        printf("\n%d",i);
    }
}
```

(ii)

```
/*Programme Q2(a)(ii)*/
#include<stdio.h>
void main()
{
    int a=20,b=5,c=-2;
    a+=b+-10;
    b-=a%3;
    c*=a/b;
    printf("\na=%d\nb=%d\nc=%d",a,b,c);
}
```

(6 marks)

(b) Write a suitable C statement that displays the following tasks.

(i) Print the value of variable `height` with two floating point format.

(ii) Add 5 to variable `mark` and assign it to variable `total`.

(4 marks)

Q3 Table Q3 shows the relationship of marks to grades on five point scale used by the Faculty of Engineering. Based on the Table Q3,

(a) Draw a flowchart of a program. (7 marks)

(b) Produce a pseudo code that allows students to know their grade based on their final marks obtained. (8 marks)

Q4 (a) Calculate the value of the expression below if x , y dan z is an integer variable where, $x=10$ and $y=15$.

(i) $z=y+x*y++$

(ii) $z=85/y++-15\%x$

(iii) $z=x*y$

(iv) $z=y++*--y$

(v) $z=y++-2$

(10 marks)

(b) Declare the reference pointer value based on the coding section below:

```
float j[5]={8.5,7.8,3.5,6.6,10.5};  
float *ptr1=&j[2],*ptr2=&j[4];
```

(i) $*j$

(ii) $*j+2$

(iii) $*ptr1 +*ptr2$

(iv) $*j+5$

(v) $*ptr1+3$

(5 marks)

- Q5** (a) Based on the statement below, write its declaration:
- (i) An array `mark` of type `int` which can store up to 10 integer numbers.
 - (ii) An array `mark` of type `double` with 2 rows and 3 columns.
 - (ii) A one dimensional array labelled as `alphabet` containing four initialize elements,

a	b	c	d
---	---	---	---

(3 marks)

- (b) Complete the program in **Figure Q5(b)** below by applying an array to sum up all the element in array `numbers` and display the final `total` value. Your program should using `for` loop.

(5 marks)

- (c) Solve and complete the full C programming by using the function definitions given in the **Figure Q5(c)**. Main function should call function `int side (void)` to get the value of `s` and then call function `void square (int)` to print the output:

(7 marks)

PART B

Q6 Develop a system using C programming to identify the minimum and maximum values, and the odd and even for two integers. You need to display all the values. System design involves three functions: to return a value, did not return a value and reference. Display an error message if the user enters other than integer's value. You are required to:

(a) Draw a flowchart with pseudocode of the programs. (5 marks)

(b) Write a pseudocode of the programs. (5 marks)

(c) Develop a C program based on the above problems. (20 marks)

Q7 Develop a system using C programming to identify the the power and acceleration. Given, $F = ma$ (force = mass x acceleration), you must display the power or acceleration. System design involves three functions: to return a value, did not return a value and reference. The user must enter 1 to calculate the power, and 2 to calculate the acceleration. If the user enters others number, an error will be displayed. You are required to:

(a) Draw a flowchart with pseudocode of the programs (5 marks)

(b) Write a pseudocode of the programs (5 marks)

(c) Develop a C program based on the above problems. (20 marks)

Q8 Develop a system using C programming to calculate total power consumption (kW) and its costs (RM) in a house based on electrical equipments listed in **Table Q8**. For every 1 kW used, user will be charge RM 0.26 for the first 200kW. If the user use more than 200kW, the remaining kW used will be charge RM 0.30 for every 1 kW. The user must enter the time consume in hour for each electrical equipments listed above. You are required to:

- (a) Draw a flowchart with pseudocode of the programs. (5 marks)
- (b) Write a pseudocode of the programs. (5 marks)
- (c) Develop a C program based on the above problems. (20 marks)

-END OF QUESTION-

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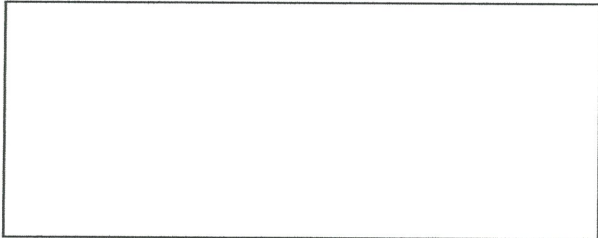
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TABLE Q3

Marks (%)	Grade
80 and 100	A
60 - 79	B
40 - 59	C
20 - 39	D
0 - 19	E

```
/*Programme Q5(b)*/
#include <stdio.h>
int main()
{
    int i;
    int numbers[5]={5,10,15,20,25};
    int total = 0;

    return 0;
}
```

FIGURE Q5(b)

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```

Definition of function square:
{
int i, j;
for ( i = 1; i <= s; i++ ){
for ( j = 1; j = <=s; j++ )
printf("*");

printf("\n");
}
    
```

```

Definition of function side:
{
printf("Enter
side:");
scanf("%d",&s);
return s;
}
    
```

FIGURE Q5(c)

TABLE Q8

Electrical Equipment	Power (Watt/hour)
Iron	1000
Rice cooker	800
Fridge	300
Television	100
Washing Machine	400