Infrastructure University Kuala Lumpur

SUNWAY INTL BUSINESS SCHOOL

FINAL EXAMINATION
JUNE SEMESTER 2018

PROGRAMMING FUNDAMENTALS
(CSC1510)

(TIME : 3 HOURS)

MATRIC NO. : | | | | | | | | | |

IC. / PASSPORT NO. : | | | | | | | | | | | | | | |

LECTURER : **PANKAJ DAWADI**

GENERAL INSTRUCTIONS

1. This question booklet consists of 9 printed pages including this page.
2. Answer **ALL questions** in Section A in the **ANSWER BOOKLET**.
3. Answer **ANY FIVE (5) questions** in Section B in the **ANSWER BOOKLET**.
4. Answer **ALL questions** in Section C in the **ANSWER BOOKLET**.

INSTRUCTIONS: **TIME:** ***3 HOURS***

SECTION A **(30 MARKS)**

There are FOUR (4) questions in this section. Answer ALL Questions in the Answer Booklet.

1. What is the output when the following code fragment is executed?

a)
```
a= 200 / 45;
b= 200% 45;
  if(a > b)
    printf("%d\t%d",a,b);
  else
    printf("%d\t%d",b,a);
```

(2 marks)

(CLO2:PLO2:C2)

b)
```
i= 0;
sum=0;
while(sum<=5)
{
  sum=sum+i;
  i++;
  printf("%d ",sum);
}
```

(2 marks)

(CLO2:PLO2:C2)

c)
```
int A[5] = { 1, 2, 3, 4};
int i;
for(i=0; i<5; i++)
{
  A[i] = 2*A[i];
  printf("%d\n",A[i]);
}
```

(2 marks)

(CLO2:PLO2:C2)

d) gender='m', age=15;

```
if(gender=='f' || age<=12)
   printf("free barbie doll\n");
   printf("discount 25%%");
```

(2 marks)

(CLO2:PLO2:C2)

e) gender='m', age=15;

```
if(gender=='f' || age>=12)
   {printf("free barbie doll\n");
   printf("discount 25%%");}
```

(2 marks)

(CLO2:PLO2:C2)

2. Determine the value of y for each of the following expression. Use the values initially assigned to the variables for each expression.

```
int i = 10, j = 2, k = 3;
```

a) `y = i - j++ * ++k;`

(2 marks)

b) `y = i +  ++j + k++;`

(2 marks)

c) `y = k % i - j;`

(2 marks)

d) `y = k % 4 * 3;`

(2 marks)

e) `y = i + j * k - i / j;`

(2 marks)

(CLO1:PLO1:C3)

3. State whether the following identifiers are valid or invalid.

a) `max-score`

(1 mark)

b) `total student`

(1 mark)

c) `integer`

(1 mark)

d) `float`

(1 mark)

e) `student_id`

(1 mark)

(CLO1:PLO1:C1)

4. Assume that a=10, b=5 and c=2, evaluate TRUE or False for the following expressions.

a) `(6/2)!=0`

(1 mark)

b) `(b-c)==c`

(1 mark)

c) `(a==b)&&(a>c)`

(1 mark)

d) `(a<b)||(b<c)`

(1 mark)

e) `!(a<1)&&(a>b)`

(1 mark)

(CLO2:PLO2:C2)

SECTION B **(30 MARKS)**

There are SIX (6) questions in this section. Answer ANY FIVE (5) questions in the Answer Booklet.

1. Rewrite the following loop into a `while loop` statement:

```
int i,b;
printf("Please enter the lower bound of the loop:");
scanf("%d",&b);
for(i = 70; b < i;  i--)
printf("%d\n",i);
```

(6 marks)

(CLO2:PLO2:C3)

2. Rewrite the following using `if` statement:

```
switch (test)
{
case 'A': printf("Selection 1");
          break;
case 'B': printf("Selection 2");
          break;
case 'C': printf("Selection 3");
          break;
case 'D': printf("Selection 4");
          break;
case 'E': printf("Selection 5");
          break;
default : printf("Invalid Entry!");
```

(6 marks)

(CLO2:PLO2:C3)

3. Write a C function which returns the minimum value of two integer values. Name the function as `FindMinimum` having two int parameters of `num1` and `num2`.

(6 marks)

(CLO3:PLO6:C3)

4. Write a C statement that accomplish the following array.

a) Declare an array named `MyList` of 20 components of type int.

(1 mark)

b) Display the value of the tenth component of the array `MyList`.

(1 mark)

c) Set the value of the fifth component of the array `MyList` to 35.

(1 mark)

d) Set the value of the ninth component of the array MyList to the sum of the sixth and the thirteenth components of the array `MyList`.

(1 mark)

e) Set the value of the fourth component of the array `MyList` to three times the value of the eighth component minus 30.

(1 mark)

f) Declare a new array named `SpecialSymbols` of type char. Initialize this array to the following values: $, #, %, @, &, !, =

(1 mark)

(CLO2:PLO2:C2)

5. The following program gets input of 5 integer numbers and stores it in a file named "`Marks.dat`". List the missing keywords accordingly.

```
#include <stdio.h>
main()
{
_____(a)_____//Declare File
int scores,i;

fptr = ___(b)___ ("Marks.dat", "w");

for(i=1;i<=5;i++)
{
___(c)_____ ("Enter 5 numbers:");
___(d)_____ ("%d",&scores);
___(e)____ (fptr,"%d\n",scores);}

___(f)_____(fptr);

}
```

(6 marks)

(CLO2:PLO2:C2)

6. Complete the program below so that it displays the value of n and the message " is positive." if n is positive. If n is negative, the program should display the value of n and the message " is negative." If n is zero, the program should display the value of n and the message " is zero."

```
#include <stdio.h>
main( )
{
   float n;
   printf("Enter a number> ");
   scanf("%f", &n);
```

(6 marks)

(CLO2:PLO2:C2)

SECTION C **(40 MARKS)**

There are TWO (2) questions in this section. Answer ALL questions in the Answer Booklet.

1. Write a complete program to process the discount given for an accumulated purchases at ABC Grocery Shop. ABC Grocery Shop sells grocery items and wants to give discounts to their customers. Discount is based on the purchase price as given below:

Price	Percentage of discount given
Up to 50.99	5%
RM 51.00 – RM 100.99	10%
RM 101.00 – RM 250.99	15%
More than RM 251.00	20%

Your program should include the following:

- Define all related variables.
- Use looping to receive the purchase amount.
- Accumulate the total purchases and calculate the discount amount.
- Display the total purchase, discount and purchase amount after discount.

Design your program according to the screen interaction given below:

```
Enter Purchase Amount: RM21.20
More Purchases: Y
Enter Purchase Amount: RM44.50
More Purchases: N

Total Purchases: RM65.70
Discount: RM6.57
Purchase Amount after Discount RM59.13
```

(20 marks)

(CLO3:PLO6:C3)

2. Write a complete program to read 10 integers from user and store them into an array. The program should be able to calculate the total value and calculate the average.

Your program should include the following functions:

- A function to calculate total values: Function receives the array and return an integer value. This function sums up all values in the array.
- A function to calculate the average value: Function receives the total value and return a float value. This function receives result of total value and computes the average.
- A main( ) function : able to display the information of total values and average value

Design your program according to the screen interaction given below

```
Enter 10 integer values:
Value 1 : 3
Value 2 : 6
Value 3 : 2
Value 4 : 4
Value 5 : 7
Value 6 : 8
Value 7 : 9
Value 8 : 12
Value 9 : 5
Value 10 :1

Total of All Numbers: 57
Average Value : 5.7
```

(20 marks)

(CLO3:PLO6:C3)

***** END OF QUESTIONS *****