CONFIDENTIAL

Infrastructure University
Kuala Lumpur

FINAL EXAMINATION
JUNE SEMESTER 2015

BACHELOR OF COMPUTER SCIENCE(HONS)
BACHELOR OF INFORMATION TECHNOLOGY (HONS) IN SOFTWARE ENGINEERING
BACHELOR OF INFORMATION TECHNOLOGY (HONS) IN NETWORK TECHNOLOGY

PROGRAMMING FUNDAMENTALS
(BTT107)

(TIME: 3 HOURS)

MATRIC NO. :

IC. / PASSPORT NO. :

LECTURER : SUHAILA MOHD NORDIN

GENERAL INSTRUCTIONS

1. This question booklet consists of 8 **printed** pages including this page.

2. **SECTION A** and **SECTION B:** Answer **ALL** questions in the Answer Booklet.
3. **SECTION C: Answer ONE (1)** question **ONLY** in the Answer Booklet.

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INSTRUCTIONS: TIME: *3 HOURS*

SECTION A   (40 MARKS)

There are NINE (9) questions in this section. Answer ALL Questions in the Answer Booklet.

1. Write correct C syntax for each statement below:

   a)   Initializing variable Pi with the value 3.14

   (2 marks)

   b)   Declare a variable named Parameter with double data type (declare variable)

   (2 marks)

   c)   State instruction that allowed user to input data (input)

   (2 marks)

   d)   Input number of computer using variable (input assign to variable value direct from system)

   (2 marks)

2. Write data to low level disk I/O?

   (2 marks)

3. Define the functions fopen(), fread(), fwrite() and fseek()

   (4 marks)

4. Differentiate between function pass by value and function pass by reference?

   (4 marks)

5. Write a C program to print 1 to 100 without using loop (use recursive function).

   (4 marks)

6. Write the detail syntax of enum datatype declaration

   (4 marks)

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7. Consider on following declaration: Identify the correct declaration

(2 marks)

    a)   `short i=10;`
    b)   `static i=10;`

8. Consider the following program.

```
#include <std.h>
void main {
int x=6, y=8;
char z = B;
++y;
Printf( "%d%c"&x%y }
```

Identify the syntax errors

(6 marks)

9. Consider the following incomplete C program. Write the appropriate code according to the descriptions given in the comments.

(6 marks)

```
int main( void ) {
char s[]="Classical Music";
char* p=(s + 4);
char c='X';
double d=150000;
long int i=18000000L;
printf( "_____", s ); /* Print the content of s */
printf( "_____", p ); /* Print the value pointed by
p */
printf( "_____", c ); /* Print the value of c */
printf( "_____", p ); /* Print the value of p */
printf( "_____", d ); /* Print the value of d */
printf( "_____", i ); /* Print the value of i */
return 0;
```

SECTION B   (40 MARKS)

There are NINE (9) questions in this section. Answer ALL Questions in the Answer
Booklet.

1. What will be output of the following c program? Explain your answer.

(2 marks)

```
#include<stdio.h>
int main(){
    int goto=5;
    printf("%d",goto);
    return 0;
```

2. What will be the output of the following C program?

(2 marks)

```
#define x 5+2
void main(){
    int i;
    i=x*x*x;
    printf("%d",i);
```

3. Find the output for the following C program

(4 marks)

```
main( )
{
int x=20,y=35;
x = y++ + x++;
y = ++y + ++x;
printf("%d %d\n", x,y);
getchar();
}
```

4. Display the output from the program segment below.

(2 marks)

```
a) int n = 140;
   int *p = &n;
   printf("%d\t\n",n);
   printf("%d\t",*p-40);
```

(2 marks)

```
b) float S[5]={10.5,12.5,13};
   S[0] = S[1]+S[2]
   printf("%f\t\n",S[0]);
   printf("%f %f \t",S[1],S[2]);
```

5. Write a C function that accepts a *1-dimensional* floating-point array and its size as argument and returns the average of the values in that array.

(8 marks)

6. Analyse the following program segment and answer the following question.

```
#include<stdio.h>
enum actor{ SeanPenn=5, AlPacino=-2, GaryOldman,
EdNorton };

    int main()
   {enum actor a=0;
       switch(a){

        case SeanPenn:
          printf("Kevin Spacey");
        break;
        case AlPacino:
         printf("Paul Giamatti");
        break;
        case GaryOldman:
         printf("DonaldShuterland");
        break;
        case EdNorton:
         printf("Johnny Depp");
       }
     return 0;}
```

a) What will be the output when the following c code is executed.

(2 marks)

b) Explain your answer in Question 6(a).

(2 marks)

7. Evaluate the following program segment , and write the output.

(5 marks)

```
int main(){
int i=2;
int n=100;

while (((n-i)%6)!=0){
        printf (" %d  \n", n);
        n=n-5;
    }
printf("y = %d", n);
getchar();
return 0;}
```

8. What is the output from the program segment below? Visualize each line.

(5 marks)

```
Line 1 -----int main ()
              {
Line 2 -----int n = 400;
Line 3 -----int *p = &n;
Line 4 -----int m = 500;
Line 5 -----int *ptr =&m;
Line 6 -----printf("%f\t",*p);
Line 7 -----p =&m;
Line 8 -----*p =*ptr+*p;
Line 9 ----printf("%d\t",n);
Line 10 ----printf("%d\t",*p);
           return 0;
```

9. What is the output from the program segment below? Visualize each line.

(6 marks)

```
int main ()
{
int x=14;
int y=60;

while (((y-x)%3)!=0){
     printf (" %d  \n", y);
     y=y-5;
}
printf("y = %d", y);

return 0;
```

SECTION C   (20 MARKS)

There are TWO (2) questions in this section. Answer ONE (1) question only in the Answer Booklet.

1. Write a program that able to receive the salary of a person for twelve month (stored in array). Include a function to calculate the total salary and tax to be paid by referring to Table 1 below. (Use the array statement and function)

salary	Tax.
Less than 15 000	15% of the salary
More than equal to 15 000 and less than 30 000	(Salary – 15000)*18%+2250.00
More than equal to 30 000 and Less than 50 000	(Salary – 30000)*20%+5500.00
More than equal to 50 000	(Salary – 50000)*35%+10900.00

Table 1

Steps:
   a) Prepare the algorithm/pseudocode

                                                                        (6 marks)

   b) Write a complete C program to implement array, looping, selection statement and function.

                                                                        (14 marks)

2. Write a program to process five item price (stored in an array). Your program should be able to receive numbers of customer to be recorded by your clerk. Enter customer particulars and count total price for each customer. The program should also calculate the discount and price after discount for each customer using the average price (base on table 2 below).

Type	Discount percentage	Price range
Gold	25 percent	RM 1500 and above
Silver	15 percent	RM 1000 - 1499
Bronze	10 percent	RM 500 - 999
Tx Free	Tax free	499 and below

Table 2: Discount table and type

Note : you are required to use **array, looping and if else statement and function**

(20 marks)

Sample of output:

```
Please Enter Number of customer =>  2

Customer id: 12345
Date: 25/01/2015

Please enter 5 price for customer 1:

Price [1]  = 55
Price [2]  = 55
Price [3]  = 55
Price [4]  = 55
Price [5]  = 56


Customer id: 12346
Date: 25/01/2015
Please enter 5 price for customer 2:

Price [1]  = 1000
Price [2]  = 2000
Price [3]  = 1000
Price [4]  = 2000
Price [5]  = 2000


Customer id: 12345
Total Price: 276  Discounted price: 0    price after discount:0
Tax free
Customer id: 12346
Total Price:8000.00 Discounted price:    price after discount:
```

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