RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES

B.Sc. (General) Degree in Applied Sciences
First Year - Semester II Examination – February / March 2019

COM 1407 – COMPUTER PROGRAMMING

Time: Three (03) hours

Instructions to Candidates:

1. This paper contains **FIVE (05)** questions in **TEN (10)** pages including this page.
2. Answer **ALL** questions.
3. Please answer the **PART-I** in the question paper itself. **DO NOT** use additional answer booklets.
4. At the end of the examination, detach **PART-I** from the question paper and attach it to your answer booklet.
5. This is a closed-book examination.

Index No.:	

Question 1	Question 2	Question 3	Question 4	Question 5	Total
Out of 20	Out of 20	Out of 20	Out of 20	Out of 20	Out of 100

PART-I:

1. Select the best answer. *[1 mark × 20 = 20 marks]*

1. What will be the output of the following program?

```
#include<stdio.h>
int main(){
  int y=128;
  const int x=y;
  printf("%d\n", x);
  return 0;
}
```

a) 128
b) Garbage value
c) Error
d) 0

2. Is it possible to run program without `main()` function?
   a) Yes
   b) No

3. What is the output of the following code segment?

```
main(){
  int x = 10;{
    int x = 0;
    printf("%d",x);
  }
}
```

a) 10
b) Compilation Error
c) 0
d) Undefined

4. What should be the output of the following code?

```
void main(){
  int a = 10/3;
  printf("%d",a);
}
```

a) 3.33
b) 3.0
c) 3
d) 0

5. Which of the following is a logical operator?

a) !
b) &&
c) ||
d) All of the above

6. What is the output of the following code segment?

```
int main(){
  int _ = 10;
  int __ = 20;
  int ___ = _ + __;
  printf("__%d",___);
  return 0;
}
```

a) Compilation Error
b) Runtime Error
c) __0
d) __30

7. How many times RUSL is printed?

```
void main(){
  int a = 0;
  while(a++ < 5-++a)
    printf("RUSL");
}
```

a) 5 times
b) 4 times
c) 2 times
d) 1 time

8. How many times Mihintale is printed?

```
void main(){
  int a = 0;
  while(a++)
    printf("Mihintale");
}
```

a) 1 time
b) 0 time
c) Infinite times (Until Stack is overflow)
d) 2 times

9. What is the output of the following program?

```
#include<stdio.h>
main(){
  int i = 1;
  while(++i <= 5)
    printf("%d ",i++);
}
```

a) 1 3 5
b) 2 4
c) 2 4 6
d) 2

10. What is the output of this C code?

```
void main(){
  m();}
void m(){
  printf("hi");
  m();
}
```

a) Compile time error
b) hi
c) Infinite hi
d) Nothing

11. Which function definition will run correctly?

a)
```
int sum(int a, int b)
  return (a + b);
```
b)
```
int sum(int a, int b)
{return (a + b);}
```
c)
```
int sum(a, b)
  return (a + b);
```
d) Both (a) and (b)

12. What is the output of this program?

```
#include <iostream>
using namespace std;
int main(){
  unsigned int x = 3;
  while (x-- >= 0){
    printf("%d  ", x);
  }
  return 0;
}
```

a) 3 2 1 0
b) 2 1 0 -1
c) infinite loop
d) -65535

13. What is the output of the following program?

```
# include <stdio.h>
void fun(int *ptr){
  *ptr = 30;
}
int main(){
  int y = 20;
  fun(&y);
  printf("%d", y);
  return 0;
}
```

a) 20
b) 30
c) Compiler Error
d) Runtime Error

14. What will be the output of the following C code?

```
#include <stdio.h>
int main(){
  int i = 10, j = 3, k = 3;
  printf("%d %d ", i, j, k);
}
```

a) Compile time error
b) 10 3 3
c) 10 3
d) 10 3 some garbage value

15. What will be the output of the following C code?

```
#include <stdio.h>
  int main(){
  int i = 10, j = 3;
  printf("%d %d %d", i, j);
}
```

a) Compile time error
b) 10 3
c) 10 3 some garbage value
d) Undefined behavior

16. In below program, what would you put in place of "?" to print "Quiz"?

```
#include <stdio.h>
int main(){
  char arr[] = "GeeksQuiz";
  printf("%s", ?);
  return 0;}
```

a) arr
b) (arr+5)
c) (arr+4)
d) Not possible

17. Predict the output of below program.

```
#include <stdio.h>
int main(){
  int arr[5];
  // Assume base address of arr = 2000, size of int = 32 bit
  printf("%u %u", arr+1, &arr+1);
  return 0;}
```

a) 2004 2020
b) 2004 2004
c) 2004 Garbage value
d) The program fails to compile because Address-of operator cannot be used with array name

18. What would be the output of the below code?

```
#include <stdio.h>
void main(){
    int x = 10, y = 20, z = 5, i;
    i = x < y < z;
    printf("%d", i);}
```

a) 5
b) 0
c) 1
d) 10

19. What is the output of the following code?

```
#include <stdio.h>
int main(){
  int num = 2;
  switch (num + 2){
    case 1: printf("Case 1: ");
    case 2: printf("Case 2: ");
    case 3: printf("Case 3: ");
    default: printf("Default: ");}
  return 0;}
```

a) Case 1:
b) Case 2:
c) Case 3:
d) Default:

20. What is the output of the following program?

```
#include <stdio.h>
int main(){
  int *ptr;
  int x;

  ptr = &x;
  *ptr = 0;

  printf(" x = %d\t", x);
  printf(" *ptr = %d\n", *ptr);

  *ptr += 5;
  printf(" x  = %d\t", x);
  printf(" *ptr = %d\n", *ptr);

  (*ptr)++;
  printf(" x = %d\t", x);
  printf(" *ptr = %d\n", *ptr);

  return 0;
}
```

a) x = 0 *ptr = 0
   x = 5 *ptr = 5
   x = 6 *ptr = 6

b) x = garbage value *ptr = 0
   x = garbage value *ptr = 5
   x = garbage value *ptr = 6

c) x = 0 *ptr = 0
   x = 5 *ptr = 5
   x = garbage value *ptr = garbage value

d) x = 0 *ptr = 0
   x = 0 *ptr = 0
   x = 0 *ptr = 0

2. *[20 marks]*

1. Brief the following terms. *[1 mark × 5 = 5 marks]*

a) Variable

b) Nested loop

c) Run Time Error

d) Relational operator

e) Syntax Error

2. *[2 marks × 3 = 6 marks]*

a) Explain bitwise left shift operator?

b) Write disadvantages of goto statement.

c) Explain #include?

3. Explain the difference between '=' and '==' operator with an example. *[3 marks]*

4. What is the output of the following code? Use only the space provided. *[3 marks]*

```
#include <stdio.h>
int main(){
  float value = 12.3456f;
  int number = 12;

  printf ("%.2f\n",value);
  printf ("%10.2f\n",value);
  printf ("%04d\n",number);
  return 0;
}
```

5. Write the correct format modifier for the following descriptions. *[3 marks]*

a) Print as floating point, 2 characters after decimal point.

b) Print as floating point, at least 6 wide and 2 characters after decimal point.

c) Print as four character string with right justified.

PART-II

3. *[20 marks]*

1. Write a C program to display the following output.

```
**************************************************
              Welcome to Tickets Online

        Source:                 Anuradhapura
        Destination:            Colombo Fort
        Scheduled Time:         8.30 a.m.
        Number of Passengers:   2
        Sear Number(s):         20, 21
              Have a Safe Journey!
**************************************************
```

2. Write a C program asking the user to enter the name, height, weight, and gender and calculate his/her BMI in Kg. Display the name, height, weight, gender, and BMI.
BMI = weight/ height^2

4. *[20 marks]*

1. Write a C program to swap two numbers using pointers and function.

2. Write a C language program to input a number and find the largest digit in a given number and print it in word with appropriate message.

e.g. input: 5273
output: SEVEN is largest

5. *[20 marks]*

1. Write a C language program to read *n* numbers in an array and split the array into two arrays even and odd such that the array even contains all the even numbers and other is odd. So the output will be as in the following example.

e.g. Original array: 7, 9, 4, 6, 5, 3, 2, 10, 18
Odd array: 7, 9, 5, 3
Even array: 4, 6, 2, 10, 18

2. Write a C language program to read a cust.txt file containing meter number, name, current reading, and previous reading. Read the same file to calculate unit and total amounts according to the following rules.

Units range	Rate (Rs./Unit)
0 – 50	1.00
51 – 100	1.50
> 100	2.00

----- End -----