



FIJI NATIONAL UNIVERSITY

COLLEGE OF ENGINEERING, SCIENCE & TECHNOLOGY

SCHOOL OF ELECTRICAL & ELECTRONICS  
ENGINEERING

TRADE DIPLOMA IN ELECTRICAL ENGINEERING

**FINAL EXAMINATION - TRIMESTER 1 – 2018**

QUESTION PAPER  
EEE 554

COMPUTER SYSTEM

Maximum Marks 100

(Time: 3 Hours 10 minutes)

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**Instructions**

1. There are Five (5) sections (A - E). **All sections are compulsory.**
2. Write your **answers legibly** in the **answer booklet** provided.
3. A **time of three (3) hours** is allowed to complete this paper. **Extra 10 minutes** allowed to read the paper.
4. You may use **blue or black ball pen** to write your answers.
5. **Insert all written foolscaps, graph paper, drawing paper, etc.** in their correct sequence and secure with string provided.
6. Write your **student identification** number on each page used.
7. **Begin each answer on a fresh new page and use both sides** of the sheets.
8. **No written or handwritten** examination support materials are permitted.
9. **No GSM mobiles or smartphones allowed** during the examination

## Section A

### Multiple-Choice

[20 Marks]

- Q.1 Where does the execution of the program starts?
- A. User-defined function
  - B. Main function
  - C. Void function
  - D. # include
- Q.2 What are mandatory parts in function declaration?
- A. Return type, function name
  - B. Return type, function name, parameters
  - C. Return type only
  - D. Parameters only
- Q.3 Which of the following is used to terminate the function declaration
- A. ;
  - B. )
  - C. ;
  - D. }
- Q.4 Which is more effective while calling the functions?
- A. Call by value
  - B. Call by reference
  - C. Call by pointer.
  - D. None of the above.
- Q.5 What is the scope of the variable declared in the user defined function?
- A. Whole program
  - B. Only inside the {} block
  - C. Only inside main function
  - D. None of the mention
- Q.6 How many minimum numbers of functions are need to be presented in C++?
- A. 0
  - B. 1
  - C. 2
  - D. 3

Q.7 How many ways of passing a parameter are there in C++?

- A. 1
- B. 2
- C. 3
- D. 4

Q.8 How many types of returning values are present in C++?

- A. 1
- B. 2
- C. 3
- D. 4

Q.9 Which one of the following is not a possible state for a pointer?

- A. Hold the address of the specific object
- B. Point one past the end of an object.
- C. zero
- D. point to a type

Q.10 Which of the following is illegal?

- A. `int *ip;`
- B. `String s, *sp = 0;`
- C. `int i; double* dp = &i;`
- D. `int *pi = 0;`

Q.11 What does the following statement mean?

```
int (*fp)(char*)
```

- A. Pointer to a pointer
- B. Pointer to an array of chars
- C. Pointer to function taking a char\* argument and returns an int
- D. Function taking a char\* argument and returning a pointer to int

Q.12 The if..else statement can be replaced by which operator?

- A. Bitwise operator
- B. Conditional operator
- C. Multiplicative operator
- D. Addition operator

Q.13 The switch statement is also called as?

- A. Choosing structure
- B. Selective structure
- C. Certain structure
- D. Optional operator

Q.14 How many types of loops are there?

- A. 4
- B. 2
- C. 3
- D. 1

Q.15 Which looping process is best used when the number of iterations is known?

- A. for
- B. while
- C. do while
- D. nested while

Q.16 Which of the following correctly declares an array?

- A. `int array[10];`
- B. `int array;`
- C. `array{10};`
- D. `array array[10];`

Q.17 What would be the index number of the last element of an array with 9 elements?

- A. 9
- B. 8
- C. 0
- D. Programmer-defined.

Q.18 Which of the following accesses the fourth element stored in array?

- A. `array[3];`
- B. `array[4];`
- C. `array(4);`
- D. `array;`

Q.19 Which of the following gives the memory address of the first element in array?

- A. `array[0];`
- B. `array[1];`
- C. `array(2);`
- D. `array;`

Q.20 Identify the correct statement

- A. Namespace is used to group class, objects and functions
- B. Namespace is used to mark the beginning of the program.
- C. Namespace is used to separate the class, objects.
- D. None of the above

## Section B

### Short Answer Questions [10 Marks]

1. Write an example of a preprocessor directive. (1 mark)
2. State the three components of a function prototype. (1 mark)
3. State the condition under which syntax error occurs. (1 mark)
4. Compare and contrast pass-by-reference and pass-by-value. (2 marks)
5. What is a pseudo-code? (1 mark)
6. What is the difference between a stream insertion and a stream extraction operator? (2 marks)
7. State the steps of a typical C++ development environment. (2 marks)

## Section C

### Programming Output [25 Marks]

Find the output of the following program. Assume all required header files are already being included in the program.

1. What is the output of the following program? (2 marks)

```
5 void Position(int &C1, int C2 = 3)
6 {
7     C1 += 2;
8     C2 += 1;
9 }
10
11 int main()
12 {
13     int P1 = 20, P2 = 4;
14     Position(P1);
15     cout << P1 << ", " << P2 << endl;
16     Position(P2, P1);
17     cout << P1 << ", " << P2 << endl;
18 }
```

2. What is the output of the following C++ program?

(2 marks)

```
1 #include<bits/stdc++.h>
2 using namespace std;
3
4 int main(){
5     int x=10,y=15;
6     int mul=x*y;
7     cout<<x<<"*"<<y<<"="<<mul;
8
9     return 0;
10
11 }
```

3. What is the output of the following C++ program, assuming user entered 2 as the measurement value?

(2 marks)

```
4 int main() {
5     float in_m, foot, yard, cent, meter;
6     cout<<"Enter a measurement in inches:";
7     cin>>in_m;
8     foot=12*in_m;
9     yard=36*in_m;
10    cent=in_m/2.54;
11    meter=25.37*in_m;
12
13    cout<<setw(2)<<foot<<"feet"<<setw(15);
14    <<setw(2)<<yard<<"yards"<<setw(15);
15    <<setw(2)<<cent<<"centimeters"<<setw(15);
16    <<setw(2)<<meter<<"meters"<<setw(15);
17    return 0;
18
19 }
```

4. What is the output of this program?

(1 mark)

```
1 #include<ostream>
2 using namespace std;
3
4 int main()
5 {
6     int a;
7     a = 5 + 3 * 5;
8     cout << a;
9     return 0;
10 }
```

5. What is the output of this program?

(1 mark)

```
1 #include<iostream>
2 using namespace std;
3
4 int main()
5 {
6     int array[] = {10, 20, 30};
7     cout << -2[array];
8     return 0;
9 }
10
```

6. What is the output of this program?

(2 marks)

```
5 int main()
6 {
7     int color=2;
8     switch(color)
9     {
10         case 0: cout<<"Black";
11         case 1: cout<<"Blue";
12         case 2: cout<<"Green";
13         case 3: cout<<"Aqua";
14         default: cout<<"Other";
15     }
16     return 0;
17 }
18
```



7. What is the output of the following program segment? (2 marks)

```
5 int main()
6 {
7     if (0) {
8         cout<<"Hello";
9         cout<<"Hi";
10        return 0;
11    }
12 }
```

8. What is the output of the segment below? (1 mark)

```
5 int main()
6 {
7     int x,y;
8     int *ptr;
9     x=100;
10    ptr=&x;
11    y=*ptr;
12    cout<<(*ptr)\n", y);
13    return 0;
14 }
15 }
```

9. What is the output of the segment below? (1 mark)

```
5 int main()
6 {
7     int val=1;
8
9     do {
10        val++;
11        --val;
12    } while (val-->25);
13
14    cout << ("%d\n", val);
15
16    return 0;
17 }
18 }
```

10. What is the output of the segment below?

(1 mark)

```
5 int main()
6 {
7     int x;
8     x = 10;
9
10    if(x > 10)
11        x -= 10;
12    else if(x >= 0)
13        x += 00;
14    else if(x)
15        x += 10;
16    else
17        x -= 10;
18
19    cout<<x<<endl;
20    return 0;
21 }
```

11. What is the output of the program segment below?

(1 mark)

```
5 int main()
6 {
7     int a=-1,b = -a;
8     int x,y;
9
10    x = (a > 0) && (b < 0) || (a < 0) && (b > 0);
11    y = (a <= 0) || (b >= 0) && (a== 0) || (b <= 0);
12
13    cout<<(x == y)<<endl;
14    return 0;
15 }
```

12. What is the output of the source code below ?

(1 mark)

```
5 int main()
6 {
7     int a=10,b=20,*p,s=0;
8
9     p = &a;
10    a--;
11    (*p)--;
12    s = a + b + *p;
13
14    cout<<s<<endl;
15    return 0;
16 }
17
```

13. What is the output by the following lines of codes?

(3 mark)

```
1 #include <iostream>
2 using namespace std;
3
4 int main()
5 {
6     int x = 2;
7     while (x<=0)
8     {
9         if(x%2 == 0)
10            cout<< x<<endl;
11        x--;
12    }
13 }
14
```

## Section D

### Correct the Code

[25 Marks]

1. Find any errors in the following C++ program.

(2 marks)

```
1 #include<iostream>
2 using namespace std;
3 void main() { /* This is the main function
4     cout<<'C++ Programming questions and answers';
5 }
6 }
```

2. Find any errors in the following C++ program.

(1 mark)

```
1 #include<iostream>
2 using namespace std;
3 void main() { // This is the main function
4     integer a;
5     float b;
6 }
7 }
```

3. Identify the error in the program segment below.

(1 mark)

```
5 void main()
6 {
7     int x = 10;
8     int y = 15;
9
10    cout<< (x, y)<<endl ;
11 }
```

4. The program should print hello repeatedly.

(1 mark)

```
5 int main(void)
6 {
7     while(1)
8     {
9         cout<<"hello";
10    }
11    return 0;
12 }
```

5. Identify the error in the program segment.

(2 marks)

```
5 void main()
6 {
7     int a,b;
8     cin<<a;
9     b=a;
10    cout <<"b=" <<a;
11 }
```

6. The program should display volume.

(3 marks)

```
1 #include <iostream>
2 void main()
3 {
4     const PI=3.14;
5     int r,h;
6     cout<<"Enter values of r and h"
7     cin>>r,h;
8     v=PI*r*r*h;
9     cout<<"volume="<<v;
10 }
```

7. The following code should declare an integer variable and assign it the value 8.

(1 mark)

```
4 int i=place
5 place = 8;
```

8. The following while loop should compute the product of all integers between 1 and 10, inclusive.

(3 marks)

```
4 int i = 1;
5 int product = 1;
6
7 while (i<=10);
8     product *= i;
```

9. The for loop should print array values.

(1 mark)

```
4 int array[10] = {0};
5 for (int i = 0; i <=10; i++)
6     cout << array [ i ];
```

10. The following program segment defines function greatest, which returns the largest of three integers:

(3 marks)

```
3 int greatest(int x, int y, int a);
4 {
5     int max = x;
6     if ( y > max)
7         y = max;
8
9     if(a>max)
10        max = x;
11    return max;
12 }
```

11. The following should display a character entered by the user.

(5 marks)

```
1 #include <iostream>
2
3 void y4(int c);
4 int main()
5 {
6     char myChar;
7     cout << " Enter a character:";
8     cin>> myChar;
9     y4(myChar)
10
11 } //end main
12
13 void y4(char c)
14 {
15     cout<<"You just entered the character:" << myChar<<endl;
16     return myChar;
17 } //end y4
18
```

12. The following program segment should accept inputs and sum integers from the user until the sentinel value, 9999, is entered. (2 marks)

```
6 int total = 0;
7 int input;
8 while (input != 9999)
9 {
10     cin >> input;
11     total += input;
12 }
```

### Section E

### Programming

**[25 Marks]**

Write a program that prompts the user to enter four integer values for the rectangular coordinates of two points (x1,y1) and (x2,y2) respectively. The program should test the validity of the user input and give the user three chances to enter the integer values. If the user fails to enter a valid number in all the three chances, the program should exit. If the user enters a valid number then the program should compute and display the distance of each point from the origin and the distance between the two points. To do this your program should have functions with the prototype double disbtwpts (). This function should compute the distance between the two points. Your program should have two other functions with the prototype void disbtwist (), and double disbtwsec(). This functions should print the distance between origin and points. Do not use sqrt() function from cmath library. You are to create a user-defined function to compute the square root of the resultant of any two points.

**The End**