



UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2017/2018**

COURSE NAME : COMPUTER PROGRAMMING
COURSE CODE : BEC 10102
PROGRAMME : BEJ / BEV
TEST DATE : JUNE/JULY 2018
DURATION : 2 HOUR 30 MINUTES
INSTRUCTION : ANSWER ALL QUESTIONS

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THIS QUESTION AND ANSWER PAPER CONSISTS OF **ELEVEN (11)** PAGES

Section A: Objective Questions

Q1 Rectangle symbol in flowchart is called as

- A) Action symbol
- B) Terminating symbol
- C) Begin symbol
- D) Connector symbol

(1 mark)

Q2 A graphical representation of an algorithm is called as

- A) Pseudocode
- B) Flowchart
- C) Flowlines
- D) Flow structure

(1 mark)

Q3 What will be the output of the following fragment code ?

```
void main ( ) {  
    cout << "%d", 'B' < 'A' ;  
}
```

- A) Error
- B) 1
- C) 0
- D) None of these

(1 mark)

Q4 C++ programming language was developed by

- A) Dennis Ritchie
- B) Ken Thompson
- C) Bill Gates
- D) Bjarne Stroustrup

(1 mark)

Q5 The equality operator is represented by

- A) :=
- B) .EQ.
- C) =
- D) ==

(1 mark)



Q6 *continue* statement is used

- A) to go to the next iteration in a loop
- B) come out of a loop
- C) exit and return to the main function
- D) restarts iterations from beginning of loop

(1 mark)

Q7 Find out the error in following block of code.

```
if (x = 100)
    cout << "x is 100";
```

- A) 100 should be enclosed in quotations
- B) There is no semicolon at the end of first line
- C) Equals to operator mistake
- D) Variable x should not be inside quotation

(1 mark)

Q8 A program that specifies that an action is to be repeated while some condition remains true, is called

- A) Repetition structure
- B) Infinite structure
- C) Non-terminating structure
- D) None of them

(1 mark)

Q9 The difference between *while* structure and *do..while* structure for looping is

- A) In while statement the condition is tested at the end of first iteration
- B) In do structure the condition is tested at the beginning of first iteration
- C) The do structure decides whether to start the loop code or not whereas while statement decides whether to repeat the code or not
- D) In while structure condition is tested before executing statements inside loop whereas in do structure condition is tested before repeating the statements inside loop

(1 mark)

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Q10 Observe the following block of code and determine what happens when x=2?

```
switch (x){
    case 1:
    case 2:
    case 3:
        cout<< "x is 3, so jumping to third branch";
        goto thirdBranch;
    default:
        cout<<"x is not within the range, so need to say Thank
You!";
}
```

- A) Program jumps to the end of switch statement since there is nothing to do for x=2
- B) The code inside default will run since there is no task for x=2, so, default task is run
- C) Will display x is 3, so jumping to third branch and jumps to thirdBranch.
- D) None of above

(1 mark)

Q11 Which of the following function declaration is/are incorrect?

- A) int Sum(int a, int b = 2, int c = 3);
- B) int Sum(int a = 5, int b);
- C) int Sum(int a = 0, int b, int c = 3);
- D) All are correct

(1 mark)

Q12 In C++ code, variables can be passed to a function by

- A) Pass by value
- B) Pass by reference
- C) Pass by pointer
- D) All the above

(1 mark)

Q13 Pass-by-reference function call is:

- A) A method that passing the address of actual parameter to the function
- B) A method that passing the value of actual parameter to the function
- C) A method that passing the number of actual parameter to the function
- D) A method that passing the data type of actual parameter to the function

(1 mark)

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Q14 Select the incorrect statement about functions in C++:

- A) Functions name can use reserve keywords
- B) Variables declared in a function is local variables
- C) There are two types of functions which are standard library and user-defined
- D) Functions can return any data types or cannot return anything

(1 mark)

Q15 The following are the elements of functions except:

- A) Function definition
- B) Function prototype
- C) Function call
- D) Function initialization

(1 mark)

Q16 Position number contained within a square brackets e.g. my_array [5], is referred as

- A) Post-scripts
- B) Sub-scripts
- C) Elements of an array
- D) None of them

(1 mark)

Q17 float a [3] = {10.2, 33.4, 44.4}; is an example of

- A) Initializing variables
- B) Initializing array
- C) Initializing functions
- D) None of them

(1 mark)

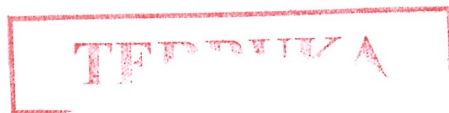
Q18 A string is terminated by a

- A) Null character
- B) Boolean expression
- C) Semicolon
- D) All of them

(1 mark)

Q19 What is mean of concatenation?

- A) Separating a string from another string
- B) Adding two strings
- C) Adding two functions
- D) None of them



(1 mark)

Q20 Consider the following fragment code.

```
int i;  
int out=1;  
for (i=0; i<10; i+=2)  
    out+=i;
```

What will be the last value stored in the variable *out*?

- A) 0 2 6 12 20
- B) 1 3 7 13 21
- C) 10
- D) 21

(1 mark)



SECTION B: Answer ALL Questions

- Q21 (a) Differentiate between function prototype and function definition. (4 marks)
- (b) List three benefits of using modular design to develop a program. (3 marks)
- (c) Answer the following questions based on the C++ program shown in **Figure Q21**.

```
1 | #include <iostream>
2 |
3 | using namespace std;
4 |
5 | int main() {
6 |     double input1 = 0.0;
7 |     double input2 = 0.0;
8 |
9 |     cout << "Enter first number and press ENTER: ";
10 |    cin >> input1;
11 |    cout << "Enter second number and press ENTER: ";
12 |    cin >> input2;
13 |
14 |    cout << "Average is: " << average(input1, input2)
15 |    << endl;
16 |    return 0;
17 | }
```

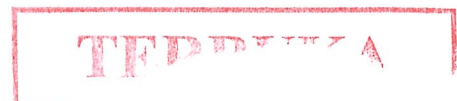
Figure Q21

- (i) Write the function prototype for the “*average*” function. (2 marks)
- (ii) Write the function definition for the “*average*” function. (4 marks)
- (iii) If you do not want to use function prototype, explain the correct way to write the C++ program such that it will compile without any error. (2 marks)

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Q22 Write C++ statements to do the following. Please note that all questions are related.

- (a) Declare an array *alpha* of 15 components of type *int*. (2 marks)
- (b) Output the value of the tenth component of the array *alpha*. (2 marks)
- (c) Set the value of the fifth component of the array *alpha* to 35. (2 marks)
- (d) Set the value of the ninth component of the array *alpha* to the sum of the sixth and thirteenth components of the array *alpha*. (2 marks)
- (e) Set the value of the fourth component of the array *alpha* to three times the value of the eight components minus 57. (2 marks)
- (f) Output *alpha* so that five components per line are printed. (5 marks)



- Q23** Given the following code. Note that the left column is contains line number have been added to you identify certain parts of the program.

```
1. #include <iostream>
2. using namespace std;
3.
4. void main(){
5.     int count, sum; float average = 0.0;
6.     int input, total_evenInput, total_oddInput;
7.
8.     input=count=sum=total_evenInput=total_oddInput=0;
9.     average=0.0;
10.
11.     while(1){
12.         cout<<"Insert integer numbers ";
13.         cout<<"(type -1 to stop the input):";
14.         cin>>input;
15.
16.         if (input== -1)
17.             break;
18.
19.         (input%2==0)?total_evenInput+=1:total_oddInput+=1;
20.
21.     }
22.
23.     cout<< total_evenInput << endl;
24.     cout<< total_oddInput << endl;
25. }
```

Figure Q23 (a)

- (a) Rewrite the statement in line 19 using if-else statement
(8 marks)
- (b) What will be the last value stored in the `total_evenInput` and the `total_oddInput` if the following input (refer to **Figure Q23(b)**) is inserted?

```
Insert integer input (type -1 to stop the input):3
Insert integer input (type -1 to stop the input):7
Insert integer input (type -1 to stop the input):100
Insert integer input (type -1 to stop the input):-1
```

Figure Q23(b)

(2 marks)

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Q24 Construct a C++ program to produce the following output.

NUMBER	SQUARE	CUBE
2	4	16
4	16	64
6	36	216
8	64	512
10	100	1000

Figure Q24

(15 marks)

Q25 Convert the following *switch* statement into *if..else*

```
switch (major_code) {
    case 1:
        cout<<"Science Student";
        break;
    case 2:
        cout<<"Art Student";
        break;
    case 3:
        cout<<"Engineering Student";
        break;
    case 4:
        cout<<"Medical Student";
        break;
    default:
        cout<<"Code error";
}
```

Figure Q25

(10 marks)

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- Q26** (a) Write a *for* loop code that calculates the sum of the first n natural numbers. For example, if the number entered is 5, the loop will calculate $1 + 2 + 3 + 4 + 5 = 15$.
(8 marks)
- (b) Convert the following *for* loop code to a *do while* loop code.

```
for (int x = 50; x > 0; x--)  
{  
    cout << x << count << "second to go.\n";  
}
```

Figure Q26

(7 marks)

- END OF QUESTION BOOKLET -

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