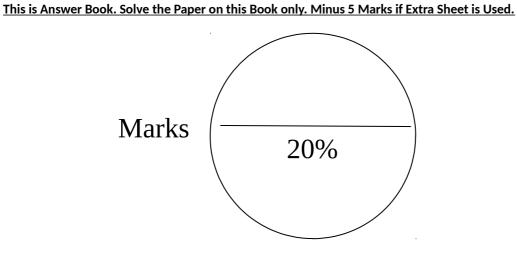# BAHRIA UNIVERSITY

ISLAMABAD CAMPUS

Department of Computer Science
Final Examination
BSCS 1 [A, B]
(Fall 2020 Semester)
Paper Type: Descriptive

Course:	**Computer Programming**	Date: 4-2-2021
Course Code:	CSC-113	Time: 12:00 pm
Faculty's Name:	**Ali Mirza**	Max Marks: 50
Time Allowed:	150 minutes	Total Pages: 10

STUDENT'S NAME (IN FULL): _____

REG NO: _____ ENROLMENT NO: _____CLASS_____

1. Write your full name and other particulars clearly and legibly. Write on both side of the papers. No page to be torn and taken out of examination venue.
2. Read the instructions on question paper and answer book carefully and understand.
3. Paper will commence at exact time. Be punctual and be inside the examination hall at least 15 minutes before paper start time.
4. Be seated as per seating plan depicted in the Examination Admit Slip.
5. Students after start of paper will not be permitted to go to washrooms/toilets or any other place outside the examination venue.

N. B: *read carefully the instructions given overleaf*

HALL NO: _____ INVIGILATOR'S SIGN: _____

INVIGILATOR'S NAME: _____

Instructions about the Paper

I.   There are total eight questions. All questions are compulsory.
II.   The paper is closed book.
III. The students are not allowed any helping material (books, tables, formulas, etc).
IV.   Use blue, black or blue-black ink only. Do NOT use lead pencil especially.
V.   Do not cheat.
VI. This is Answer Book. Solve the Paper on this Book only. Minus 5 Marks if Extra Sheet is Used.

Marks

20%

INSTRUCTIONS FOR STUDENTS

1. No student would be allowed to sit in the Examination venue without showing Examination Admit Slip to the invigilator. No student should allow anyone to impersonate him/her. This may result in serious consequences even to the extent of cancellation of registration from Bahria University.

2. Students prior entering the Examination venue should ensure that they are not in possession of written material of any sort. All such material is to be left outside the venue Examination. Any written material found possession of a student, whether that material is related or unrelated to the paper, will result in grade 'F' in the relevant paper.

3. Writing on palm, arm or anywhere on the candidate's body/clothing is considered enough proof of cheating, which will result in award of grade 'F' in the paper.

4. Any attempt to copy/take or give help in examination is an offence, punishable even to the extent of expulsion from the Institution.

5. Books and notes are not to be brought inside the examination hall except in case of open book exam.

6. Bring your own pen, pencils erasers, scales and calculators. Borrowing at the places of examination is not permitted. Special/programmable calculators (except where permitted), electronic notebooks, mobiles phones, PDAs and any other electronic accessories are prohibited at the examination venues.

7. All rough work is to be done on right side of the answer book, opposite the same question.

8. Additional sheets or graph sheet etc, if used, are to be properly tagged. Serial number of extra book(s) taken (if any) should be entered in the specified box on the main Answer book.

9. Do not ask for any help form the invigilators in solving questions. This may be taken as an act of academic dishonestly and dealt accordingly. You may seek invigilator's assistance regarding misprinting. How and what to write should not be asked. Any query related to the question paper is to be clarified by concerned faculty member within first thirty minutes of the paper only. The query is to be addressed to all the students loudly by the concerned faculty.

10. Possession of firearms, knives etc, inside and in the vicinity of Examination Half is a punishable crime under the country's law.

11. Disrupting the Examination venue by shouting or by rowdy acts, will be considered as serious punishable act under the country's law.

12. You are required to be respectful and polite and polite towards the invigilation and admin staff. Show of temper, anger, misbehavior, misconduct or disrespectful utterances will be dealt with serious punishment.

13. Eatables, beverages and smoking is not permitted at Examination venue.

Certified that I have read and understood the instruction for compliance in the Examination hall/venue and I hereby undertake to abide by these in their true letter and spirit. I also declare on oath/affirm that I shall not challenge any penalty imposed on me by the Competent Authority for violating any of the instruction.

Signature of the Student:

1) Provide the answers of given multiple choice questions. Write your final answers only in the table below, answers other than tables will not be acceptable. Cutting/overwriting is not allowed.

(Marks = 20 x 0.5 = 10)

1	2	3	4	5	6	7	8	9	10

11	12	13	14	15	16	17	18	19	20

1. floor( ) will round off 1.8 to?
a. 0
b. 1
c. 2
d. 3

2. ceil( ) will round off 1.8 to?
a. 1
b. 2
c. 3
d. None of these

3. pow( ) takes ____ values as argument of type:
a. 1
b. 2
c. 3
d. None

4. Which is the incorrect overloaded form of function int Compute().
a. int Compute(float x);
b. float Compute();
c. int Compute(int);
d. int Compute(int, int);

5. An object of if stream can be used to open a file in _____ mode?
a. Append
b. Read
c. Write
d. All of these

6. Which one of the following C++ statements is for dereferencing of pointer variable called ptr which is pointing to variable a?
a. &prt
b. *prt
c. *a
d. &a

7. For the given function prototype, which function call is correct? void myFunction(int);
a. int result = myFunction(a);
b. myFunction(a);
c. myFunction(&a);
d. myFunction(*a);

8. Original values of parameter(s) are always changed when passed to function:
a. By value
b. By reference
c. By static
d. By gobal

9. For the given declaration of string, how many bytes will be taken in the memory? char welcomeMessage[]="\"Hi CP\"";
a. 7
b. 8
c. 9
d. 10

10. Which function from <cstring> library is used to add two strings
a. strch_s
b. strcat_s
c. strlen
d. strcpy_s

11. Which is correct syntax ?
a. myfile:open ("example.txt", ios.out);
b. myfile.open ("example.txt", ios::out);
c. myfile::open ("example.txt", ios::out);
d. myfile.open ("example.txt", ios:out);

12. Which statement is incorrect about Enumerations in C++?
a. Constants in enum should be unique
b. Constants in enum starts from 1
c. Constants are always integers
d. Cannot assign integer to enumeration variables

13. int n = k++;   what is the value of n if k=2?
a. 1
b. 2
c. 3
d. 0

14. Operator precedence means?
a. Which operator is more important

b. left to right execution of an operator
c. Sequence of execution of operators
d. None of these

15. Which one of these datatype does not take 4 bytes in memory?
a. int
b. short
c. long
d. float

16. Which operator can be applied directly on structures of C++
a. Equality operator
b. Assignment operator
c. Relational operators
d. Arithmetic operators

17. int x = k = 2;   what will be the value of x if k = 1;
a. 1
b. 2
c. 3
d. 4

18. int x = k || 2;   what will be the value of x if k = 1;
a. 0
b. 1
c. 2
d. 3

19. int x = k & 1;   what will be the value of x if k = 1;
a. 0
b. 1
c. 2
d. 3

20. int x = k | 0;   what will be the value of x if k = 1;
a. 0
b. 1
c. 2
d. 3

2) Write the output of the following codes;
   (Marks 1 x 5 = 5)

   a)   **Output**

```cpp
int n = 2;
cout << (n = 4) << endl;
cout << (n == 4) << endl;
```

   b)

```cpp
int n;
int k = 2;
n = (k > 2 ? k + 1 : k - 1);
cout << n << endl << k;
```

```cpp
for (int i = 10; i >= 0; i -= 2)
{
    if (i % 3 == 0)
        break;
    cout << i << endl;
}
```

```cpp
int x = 1, y = 2;
int result = y++ + ++x;
cout << result << endl;
cout << y << endl;
```

   e)

```cpp
int n = 5;
while (n < 6)
{
    cout << n << endl;
    n++;
}
cout << n << endl;
```

a	0x12 20	
	0x12 24	
	0x12 28	
b	0x12 2c	
	0x12 30	
	0x12 34	
	0x12 38	
c	0x12 3c	

(Marks = 6)

```cpp
a = 5;
int* ptrA = &a;
int* ptrB = &b;
int* ptrC = &c;
ptrA = ptrB;
*ptrA = 20;
*ptrB = (*ptrA) + 10;
*ptrC = *ptrB;
(*ptrB)++;
```

ptrA [   ]

ptrB [   ]

ptrC [   ]

4) Write **int getRandomNumber(int start, int limit);** that returns the random numbers ranging from [start to limit]. Value of start must be less than value of limit, if not then function must return -1.   **(Marks = 3)**
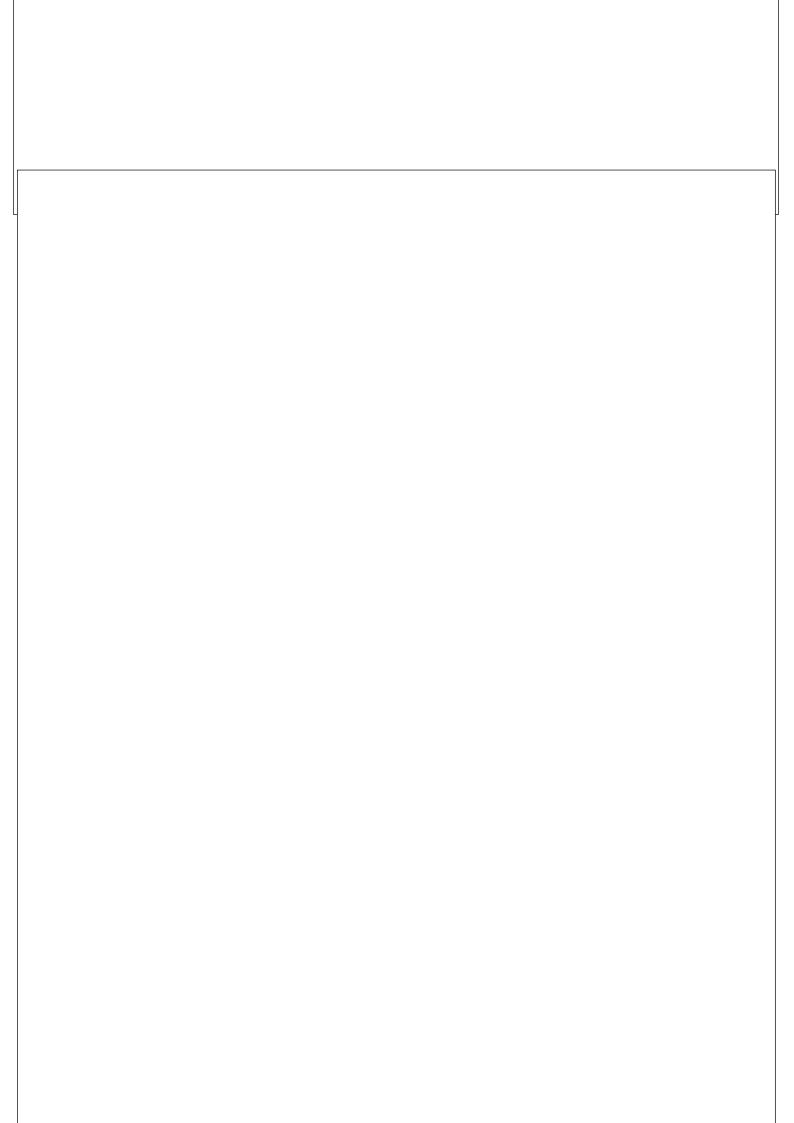
5) Following function number of lines and prints the triangle as given in Figure: 1. Modify the function and write the new one that prints the triangle as given in Figure 2.
(Hint: minimum changes are required in given code)

(Marks = 4)

```cpp
void printTriangle(int numberOfLines)
{
    for (int lines = numberOfLines; lines >= 1; lines--)
    {
        for (int print = numberOfLines; print >= 1;
print--)
        {
            if (print <= lines)
                cout << "*"; //print stars
            else
                cout << " "; //print space;
        }
        cout << endl;
    }
}
```

```
        *
       **
      ***
     ****
    *****
   ******
  *******
 ********
*********
**********
```

Figure: 1

```
**********
 *********
  ********
   *******
    ******
     *****
      ****
       ***
        **
         *
```

Figure: 2

8) **For the given function, first of all, write the output of the function and then modify the function and write a new one which writes the output in a file called** *'stringOutput.txt'*. **(Marks = 4)**

```cpp
void unknowFunction()
{
    char string[] = "A quick brown fox jumps over the lazy dog.";
    char separators[] = "o";
    char* token;
    char* next_token;
    token = strtok_s(string, separators, &next_token);
    while ((token != NULL))
    {
        if (token != NULL)
        {
            cout << token << endl;
            token = strtok_s(NULL, separators, &next_token);
        }
    }
}
```

9) Write a struct Citizen with data members (char[] name, int age, char gender). Create a function isVoter() which takes an object of struct Citizen as input argument and determines whether he/she is eligible to vote (i.e. 18 years and above). The function should return true if the citizen can vote else it should return false. (Give function definition only) Declare the object of Citizen in main function and call the function isVoter(). (Marks = 10)

Rough Work