

CS101: Autumn 2019 Quiz 1 (Paper A)

7 questions, 6 sides, 20 marks, 23rd August 2019, 8:15 am to 9:25 am

Name: _____ Roll number: _____

Room No: _____ Department _____ Degree Program _____

Write your answers directly on this answer paper in the spaces provided. You can use spare space on question paper for rough work. You MUST write your final answer on this question paper itself. Answers must be written in pen (not pencil). Write your roll number on all pages. Please make sure that your hand-writing is readable.

DO NOT WRITE IN THE TABLE BELOW

Q #	Marks	Grading TA	Verifying TA	Remarks
1				
2				
3				
4				
5				
6				
7				

Total: _____

Roll number: _____

For Rough work

1. (1 mark) Output of the following code fragment is _____

```
int t=8;
repeat(2){
    t = t - (t/2) - 1;
}
cout << t;
```

2. (1 mark) Output of the following code fragment is _____

```
int n=5;
double d = n/2;

if (d > 2)
    cout << d*n;
else
    cout << (d+1)/n;
```

3. (4 marks) The following code segment is used to calculate a^b , with **a** and **b** taken as inputs. Fill in the **four** blanks to complete the program. Cannot use the **pow** function. Assume **a** and **b** to be greater than zero.

```
int a=1, b=1; int c=1;

cin>> a >> b; // get the two numbers

repeat(____(i)____) {
    ____ (ii) ____ = ____ (iii) ____ * a;
}

cout << ____ (iv) ____; // print answer
```

Ans:

(i): _____

(ii): _____

(iii): _____

(iv): _____

4. (4 marks) Fill in the **four** blanks of a code segment that reverses an input integer and prints the value of the reversed number divided by 2. E.g., Input 12, Output: 10.5

<pre>int n=0, digit; ____(i)____ num=0; cin >> n; // input number while(____(ii)____) { digit = n%10; n = n/10; num = ____ (iii) ____ * 10; num = ____ (iv) ____ + digit; } cout << num/2 << endl;</pre>	<p>Ans:</p> <p>(i): _____</p> <p>(ii): _____</p> <p>(iii): _____</p> <p>(iv): _____</p>
--	--

5. (4 marks) Floyds triangle is a right-angled triangle of natural numbers represented as follows:

```
1
2 3
4 5 6
7 8 9 10
```

Fill in the **four** blanks to complete the program that prints the Floyds triangle shown above.

<pre>int i=1, j=1, n=1; while(____i____) { j=1; while(____ii____) { cout << ____iii____ << " "; n++; j++; } cout << ____iv____; i++; }</pre>	<p>Ans:</p> <p>(i): _____</p> <p>(ii): _____</p> <p>(iii): _____</p> <p>(iv): _____</p>
--	--

6. (4 marks) The following code segment is used to determine the **second largest even** number in a sequence of input numbers. Fill in the **four** blanks to complete the program. Assume the input to be the size of the sequence, followed by the sequence of numbers in increasing order and has at-least two even numbers.

Sample input: 5 1 2 4 5 6 **Sample output:** 4

<pre>int n=0, max=0, second=0; int value, i=1; cin >> n; // size of input sequence while(____(i)____) { cin >> value; // read input number if (_____(ii)_____) { _____(iii)_____; _____(iv)_____; } i++; } cout << second;</pre>	<p>Ans:</p> <p>(i): _____</p> <p>(ii): _____</p> <p>(iii): _____</p> <p>(iv): _____</p>
---	--

7. (2 marks) Following is a code snippet to calculate the factorial of an input number **n**. Identify the line numbers with errors in the program, add a remark to describe each as a syntax error or logical error and how to fix it. A single line may have multiple errors.

```
1. int i, number=0;
2. fact;

3. cout << "Enter a Number: ";
4. cin >> number;

5. repeat(number){
6.     fact = fact * i;
7.     i+1;
8. }
9. cout << fact << endl;
```

Ans:

Line no.	Type of error (Syntax/logical)	How to fix it?

Roll number: _____

For Rough work