Exam-Cntr
02

Roll Number:	
Thapar University Patiala	
Department of Computer Science & Engineering	
BE/ B.Tech.-First Year (I Semester) ***MST : September 19, 2016, 13:00 – 15:00***	**UTA 007: Computer Programming I**
Time: 02 Hours	Max Marks: 25

NOTE: Attempt ALL questions in order. Start new answer on a fresh page only. Write your GROUP name and TEACHER's name correctly and prominently on first page of the answer sheet.

Q1. A) Explain logical operator(s). B) Differentiate between compiler and interpreter. C) Differentiate between unary '-' and binary '-' operators. (0.5, 1, 1)

Q2. Answer the following questions considering a machine which reserves 6 bits of memory to store an integer variable. For an integer variable *num*, A) What is the number of different values *num* can hold? B) What is the range of *num*, if it is signed? C) What is the range of num, if it is unsigned? (0.5, 1, 1)

Q3. What is an array? How is a two dimensional array represented in memory? Explain with a suitable example. (0.5, 1, 1)

Q4. Define a function. Highlight its importance/ significance. Differentiate between function declaration and function definition. (0.5, 1, 1)

Q5. What is a structure? Write a program to create a structure to store the information of 15 employees; including employee name, employee code and their salary. (0.5, 2)

Q6. Find errors in the program code:

```
main(){
int i=0, j, n, a[] = {6,5,3,9,11};
 for(;i<n;i++)
  for(j=i+1,j<n;j++) {
   if(a[i]>a[j]) {
      temp = a[i];          a[i] = a[j];          a[j] = temp;
   }          }          }
```

(2.5)

Q7. Write a program to add two complex numbers using structures. A complex number is a number that can be expressed in the form $a + bi$, where a and b are real numbers and i is the imaginary unit, that satisfies the equation $i^2 = -1$. In this expression, a is the *real part* and b is the *imaginary part* of the complex number. (2.5)

Q8. What is conditional operator? Write down the C++ syntax of the *switch* case statement and mention the advantages of it over *if-else* statement. (0.5, 2)

Q9. "for" loops can always be re-written as "while" loops, and vice-versa. Yes or No. Justify your answer by taking suitable example(s). (0.5, 2)

Q10. Write a program to compute factorial of n : fact(n), for n>0. Assuming that fact(0) = 1. (0.5, 2)