

Computer Science I Midterm Exam
September 2015
Indian Statistical Institute

Answer any 15 of the following - 2 marks each

1. A C program begins execution with the function.
2. In the following C program, the last statement is

```
int main()
{
    printf("Hello World\n");
    .....
}
```
3. Computers store information in form
4. In a C program, the declaration

```
int x;
```

 makes x an variable
5. To store 3.14 in a variable pi, declare pi as a data type
6. To store the value "Hello", use an array of data type
7. An array is a contiguous location in memory of data types
8. Consider `char x = 'a'`; `printf("%d", x)` will print value of 'a'.
9. There are two ways in which one can call a function, pass by and pass by
10. To access an element in an array, one uses the of an array element
11. `int i = 2/7` will yield
12. Consider the variable `discount[3] = { 2.5, 3.5, 4.5 }` which should be declared as a data type
13. `int i = 2; printf("%d ", i++)` will print
14. `char X = 'a'; X += 5` will store alphabet in X.
15. The function is used to determine the size of a data type on a computer
16. The function `scanf()` is used to
17. The function `printf()` is used to
18. The function is used to determine the length of a string

Answer the following as True or False - 2 marks each

1. Consider the following code

```
int X = 0;
if (X != 0)
    printf ("Value of X is %d", X);
```

The above `printf` statement will always execute
2. `int` data type can be used to store decimal values
3. A string is an array of float datatype
4. Consider the code

```
int x = 10, y = 20;
int *ip = &x;
printf("%d\n", *ip)
```

The above will print 10

5. %s can be used as the format specifier for strings

Answer the following - 4 marks each

1. Write an if-else block that checks if a value is positive or negative
2. Declare an array, X of 10 integers
3. Declare a function factorial that takes a pointer to an integer and returns an integer which is the factorial.
4. Declare and Define a constant for the value of Pi -
5. Consider the code

```
int i, j=0;
for (i = 10; i > j; i--)
    j+=2;
```

How many times will the for loop execute?

Answer any 4 of the following - 5 marks each

1. Write a program that prints "hello world" on the screen
2. Write a program to read two numbers from stdin and print out their sum on stdout.
3. Write a function that swaps two integers
4. Write a function that takes two parameters, an integer array as a parameter and an integer which is the length of the array. The function should return an integer which is the sum of the individual elements of the array.
5. Write a program to read a character from the keyboard and print a character and its corresponding ASCII value

Answer any two: - 10 marks each

1. Write a program that reads a number between 1 and 50 and prints out the factorial of that number.
 1. write a recursive function that computes the factorial
2. Write a program that determines if a number is prime.
3. Write a program to calculate the fibonacci series for a number upto 200
4. Write a program that reads a string and prints out the reverse of the string