Computer System and Programming in C
Assignment 3.2

Theory Questions:

1. What do you mean by looping or iteration?
2. How are loops different from conditional statements like if and switch?
3. Which loop or iterative statements are provided by C?
4. Explain the entry and exit control loops in C? *[IMP]*
5. Explain for loop along with syntax and example?
6. Explain while loop along with syntax and example?
7. Explain do-while loop along with syntax and example?
8. Differentiate between while loop and do while loop?
9. What is the minimum number of times a do while loop is executed? Explain.
10. Explain **break** statement along with syntax and example.
11. Explain **continue** statement along with syntax and example.
12. Explain the difference between **break** and **continue**. *[IMP]*
13. What do you mean by functions in C programming? Explain types of functions?
14. Explain various mechanisms for parameter passing *OR* Write a short note on **call by value** and **call by reference** *OR* Explain passing values to functions? *[VERY IMP]*
15. Explain in detail the principle of **recursion** along with suitable example? *[VERY IMP]*

Programming Questions:
[Choose any appropriate loop if not specified]

1. WAP to find out whether a number is prime number.
2. WAP to find sum of digits of a number.
3. WAP in 'C' that will read a positive number from the keyboard and print it in reverse order.
   E.g., 24578   output: 87542
4. WAP to print sum of following series:
   $1/x \quad + \quad 1/x^2 \quad + \quad 1/x^3 \quad ……………….. \quad 1/x^n$
   E.g., if the user enters x=2 and n=3
   Your program should display => 0.875
5. WAP in C to print following pattern:
   ```
        1
        2  3
        4  5  6
        7  8  9  10
   ```
6. What will be the output of following program:
   a.
   ```
   #include<stdio.h>
   void main()
   ```

```
{
int a=10,b=1;
do
{
        printf("Inside do while\n");
}while(a<b);
}
```
[**Ans**. Inside do while]
[**Hint**: do while loop is executed atleast once even if the condition is false since condition in the end]

b.
```
#include<stdio.h>
void main()
{
int a=5,b=7,c=3;
while(a+b-c)
{
printf("KIET\n");
}
}
```
[**Ans**. KIET will be printed infinitely]
[**Hint**. Always remember 0 represents false and any number other than 0 represents true]

c.
```
#include<stdio.h>
void main()
{
int a=8,b=98;
while(!(a<b))
{
printf("KIET\n");
}
}
```
[**Ans**. Nothing will be printed]
[**Hint**. Logical Not operator ! inverts the condition]

7. WAP to find out tax on an item @10% its cost. After the first item you must ask the user whether he wants to continue by typing 'Y' through the keyword. If he types 'Y' then again find the tax on second item and so on.
   [**Hint**. Your loop needs to be executed atleast once according to question so use do-while]
8. Write a C program to find the factorial of a given number using recursion
9. WAP to find GCD of a given number using functions and using recursion.

Note: Prepare lab questions from Practical 6 to 24 for CT2