M.Sc. (Informatics) - I Semester - 2013

IT 11- Programming Methodology

Time: 3 Hrs.

Max. Marks: 75

Note: Attempt 5 questions in all. Q1 is compulsory.

Q1.

(10+3+2)

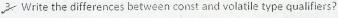
- 1. Provide the description of following declarations?
 - a. void *(*fp[4])(int *, void *, char *);
 - b. char (*(*f())[])();
 - c. void (*ptr)(int, void (*)());
 - d. int ** (*ptr)(int **, int ** (*) (int **, int **)):
 - e. void (*ptr)(void (*) (int, void **) , int (*) (void **, int *));
- 2. What is a programming paradigm? Give examples. Mention the name of programming paradigm used by C programming language?
- 3. What are Ivalue and rvalue? Give examples.

Q2.

(3+3+2+3+2+2)

That are the differences between declaration and definition? Identify which of following are declarations and which are definitions?

- a. extern int x;
 - b. float z;
 - c. double pow (double, double);
 - d. float square (float x) { return x*x; }
- 2. Name different storage classes in Clanguage. Give brief description of each storage class.



4. What are the different scopes of variables defined in standard C language?

5. What are logical operators in C language? Give example of logical operators and there action.





6. Whether sizeof is an operator or function? Provide the output of following printf statement.

printf (" %d %d", sizeof (NULL), sizeof (""));



(2+3+3+4+3)

- 1. Mention the name of data types supported with switch statement? Does enumerations are allowed with switch statement?
- 2. Name the different Jump statements supported in standard C language? Give examples of each.
- 3. What are recursive functions? Write the differences between recursion and iteration?
- 4. Provide the output of following statements?
 - a. printf ("%10s", "seeta");
 - b. printf ("a=%3d", 78);
 - c. printf ("19\\Sep\\2020");
 - d. printf ("float=%7.2f", 5.9);
- 5. What is Enumerations? Why enumerations are used? Provide the output of following program. #include<stdio.h> enum day{sun=1,mon,tue,wed}; int main(void)

```
enum day d1:
printf("%d\t",mon);
```

d1 = mon+2:

printf("%d\n",d1); return 0:

- 1. What is difference between following two pointer declarations?
 - a. const int * ptr;
- b. int * const cptr;



2. What are Command line arguments? Explain using C program?



What are Arrays? Write the use of arrays in programming? Write a small program to show passing any 1-D array of integers to some function? Passing an array to function is call by value or call by reference?



What are Strings? How strings are supported in C language? Provide the output of following program.

#include<stdio.h>

#include<string.h>

int main(void)

char arr[50]="BEST WISHES"; printf("size=%d|len=%d\n",sizeof(arr),strlen(arr)); return 0:

Q5.

1. Give answers of following:

(5+5+3+2)

_a. What is Dynamic memory management in Clanguage?

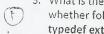
Name the various functions used for dynamic memory management.

c. Fill up the behaviour of realloc function for following two cases mentioned below:



First Parameter	Second Parameter	Behaviour of realloc
Null	N/A	7
Not Null	0	2

- 2. Give answers of following:
 - a. What are self referential structures?
 - ...b. Write the differences between structure and unions?
- c. What are bit fields?
 - d. What is Garbage collection? Does C supports automatic garbage collection?



- 3. What is the use of typdef keyword in C language? Give example. Check whether following program statement is correct or not? typedef extern int marks;
- 4. What are Memory leaks? Give one example.

- 1. Give answers of following:
 - _a. Explain any 5 different modes used to open a file?
 - b. Why buffers are used in file handling?
 - c. Complete following table:

File Pointer	Buffering Type
stdin	?
stdout '	?
stderr	?



- d. What is significance of EOF in file handling? From standard input which key combination is used as an End of File in UNIX operating system?
- Name the C library functions used for following file I/O:
 - ∠ > Character I/O.
 - → String 1/0.
 - Formatted I/O.
 - > Block or Record I/O.
- 2. Give answers of following:
 - - b. What are Variadic functions?
 - c. Name two Variadic functions defined in standard C I/O library (stdio.h)?
 - d. Check whether following is correct declaration of Variadic function? void fn(...);
 - e. Provide the output of following program?

```
#include<stdio.h>
#define SQUARE(x) ((x)*(x))
int main(void)
{
    int k=5,s;
    s=SQUARE(k);
    printf("s=%d, k=%d\n",s,k);
    return 0;
```