SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)
COIMBATORE – 35
DEPARTMENT OF COMPUTER SIENCE AND ENGINEERING (UG & PG)
First Year & 1st Semester
2 Marks Question and Answer

Subject Code & Name: 19CST101 – Programming for Problem Solving

UNIT IV

1. What is meant by Recursive function?

If a function calls itself again and again, then that function is called Recursive

2. What is a Pointer? How a variable is declared to the pointer? (MAY 2009)

Pointer is a variable which holds the address of another variable.
Pointer Declaration:
datatype *variable-name;
Example:
int *x, c=5;
x=&a;

3. What are the uses of Pointers?

Pointers are used to return more than one value to the function
Pointers are more efficient in handling the data in arrays
Pointers reduce the length and complexity of the program
They increase the execution speed
The pointers saves data storage space in memory

4.What is the output of the program?
main() junk(int i, int j)
{ {
int i=5;j=2; i=i*j;
junk(i,j); j=i*j;
printf("\n %d %d",i,j); }
}
Output:
1. 2
2.

5. What are * and & operators means?
'*' operator means 'value at the address'
'&' operator means 'address of'

6. What is meant by Preprocessor?

Preprocessor is the program, that process our source program before the compilation.

7. How can you return more than one value from a function?

A Function returns only one value. By using pointer we can return more than one value.

8. What are the main elements of an array declaration?
Array name
Type and Size

9. List the header files in 'C' language.
<stdio.h> contains standard I/O functions
<ctype.h> contains character handling functions
<stdlib.h> contains general utility functions
<string.h> contains string manipulation functions
<math.h> contains mathematical functions
<time.h> contains time manipulation functions

10.What are the steps involved in program development life cycle?
1. Program Design
2. Program Coding
3. Program Testing & Debugging

11. What are the types of errors occurred in C program?
1. Syntax errors
2. Runtime errors
3. Logical errors
4. Latent errors

12. What is testing?
Testing is the process of executing the program with sample or tested data.

13. What are the types of testing?
Human testing
Computer based testing

14. How do you define enumerated data type?
enum mar_status
{ single,married,widow };
enum mar_status person1,person2;
person1=married;
Here the person1 is assigned to value zero.

15. What is meant by debugging?
Debugging is the process of locating and isolating the errors.

16. Specify any five syntax error messages.
Missing semicolon
Missing braces
Missing quotes
Improper comment characters
Undeclared variables

17. What are the pre-processor directives?
Macro Inclusion
Conditional Inclusion
File Inclusion

18. What is dynamic memory allocation?
Allocating the memory at run time is called as dynamic memory allocation.

19. What are the various dynamic memory allocation functions?
malloc() - Used to allocate blocks of memory in required size of bytes.
free() - Used to release previously allocated memory space.
calloc() - Used to allocate memory space for an array of elements.
realloac() - Used to modify the size of the previously allocated memory space.

20. What is the deference between declaring a variable and defining a variable?
        Declaring a variable means describing its type to the compiler but not allocating any space for it. Defining a variable means declaring it and also allocating space to hold the variable. A variable can also be initialized at the time it is defined. To put it simply, a declaration says to the compiler, "Some where in the program there will be a variable with this name, and this is the kind of data type it is." On the other hand, a definition says, "Right here is this variable with this name and this data type". Note that a variable can be declared any number of times, but it must be defied. Exactly once. For this reason, definitions do not belong in header files, where they might get #included into more than one place in a program.

21. Why does n++ execute than n=n+1?
        The expression n++ requires a single machine instruction such as INR to carry out the increment operation whereas; n+1 requires more instructions to carry out this operation.

22. Why is it necessary to give the size of an array in an array declaration?
        When an array is declared, the compiler allocates a base address and reserves enough space in the memory for all the elements of the array. The size is required to allocate the required space. Thus, the size must be mentioned.

23. What is the difference between an array and pointer?

Arrays	Pointers
1.Array allocates space automatically.	1.Pointer is explicitly assigned to point to an allocated space.
2.It cannot be resized.	2.It can be resized using realloc ().
3.It cannot be reassigned.	3.Pointers can be reassigned.
4.Size of(array name) gives the number of bytes occupied by the array.	4.Sezeof(pointer name) returns the number of bytes used to store the pointer variable.

24. What is the purpose of the function main()? (MAY 2009)
        The function main () invokes other functions within it. It is the first function to be called when the program starts execution.
Some salient points about main() are as follows:
1. It is the starting function .
2. It returns an int value to the environment that called the program.
3. Recursive call is allowed for main() also.
4. It is a user-defined function.
5. Program exection ends when the closing brace of the function main() is reached.
6. It has two arguments (a) argument count and (b)argument vector (reprensents strings passed.)
7. Any user-defined name can also be used as parameters for main() instead of argc and argv

25. What is dangling pointer?
        In C, a pointer may be used to hold the address of dynamically allocated memory. After this memory is freed with the free() function, the pointer itself will still contain the address of the released block. This is referred to as a dangling pointer. Using the pointer inthis state is a serious programming error. Pointer should be assigned NULL after freeing memory to avoid this bug.

26. List the characteristics of Arrays.

All elements of an array share the same name, and they are distinguished form one another with help of an element number. Any particular element of an array can be modified separately without disturbing other elements.

27. Define Strings.

The group of characters, digit and symnbols enclosed within quotes is called as Stirng (or) character Arrays. Strings are always terminated with '\0' (NULL) character. The compiler automatically adds '\0' at the end of the strings.
Example:
char name[]={'C','O','L','L','E','G','E','\0'};
The character of a string are stored in contiguous memory locations as follows:
C O L L E G E \0
1000 1001 1002 1003 1004 1005 1006 1007

28. What is the use of 'typedef''?

It is used to create a new data using the existing type.
Syntax: typedef data type name;
Example:
typedef int hours: hours hrs;/* Now, hours can be used as new datatype */

29. What is 'C' functions? Why they are used?

A function is a self-contained block (or) a sub-program of one or more statements that performs a special task when called. To perform a task repetitively then it is not necessary tore-write the particular block of the program again and again. The function defined can be used for any number of times to perform the task.

30. Differentiate library functions and User-defined functions.

Library Functions	User-defined Functions
a) Library functions are pre-defined set of functions that are defined in C libraries. b) User can only use the function but cannot change (or) modify this function.	a) The User-defined functions are the functions defined by the user according to his/her requirement. b) User can use this type of function. User can also modify this function.