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

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UNIT – 2
Basics of C Programming

1. What are the various types of operators?
C supports the following types of operators
Unary
Unary Plus +
Unary Minus -
Increment ++
Decrement --
Binary
Arithmetic +,-,*,/,%
Relational <,>,<=,>=,==,!=
Logical &&,||,!
Bitwise &,|,^,<<,>>
Assignment =
Shorthand assignment +=, -=,*=,/=,%=
Ternary
?:
Special
Sizeof(), *. ->

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2. Write a for loop to print from 10 to 1?
for(i=10;i>0;i--)
printf(―%d‖,i);

---

3. Write any two preprocessor directives in C?
Preprocessor directive instructions are used to instruct the preprocessor to
expand/translate the source program before compilation
The two types of preprocessor directives are,
#define to define Macro , Global constant
#include to include library files

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4. List different datatypes available in C?

Data types are used to specify the type of a variable. In c, the data types are classified into 3 category. They are,
Primary or Built-in : int , char, float
Derived : array, enum, pointer
User defined : function, structure

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5. Write a C program to find factorial of a given number using Iteration?

```
void main()
{
int N=5,I,fact=1;
for(i=1;i<=N;i++)
fact=fact*i;
printf(―The factorial value of %d is =%d‖,N,fact);
}
```

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6. What is the use of preprocessor directive?

Used to translate one high level language statement into another high level language statement.
Used to instruct the preprocessor that how it performs the translation before compilation.
Used to perform conditional compilation.
Used to include other C files or library files.

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7. What is the variable? Illustrate with an example

- Variable is a named storage area
- Used to assign a name to a value
- To declare a variable, we need to specify the data type of the value and the variable name
Data type variable _name ;
- Example
int reg; float avg;

---

8. What is the use of #define preprocessor?

The #define preprocessor directive is used to define a
Global constant #define PI 3.14
Macro #define big(a,b) a>b?a:b
When a compiler reads the macro name, it replaces the macro name by its expansion. When it reads the constant label, it replaces the label by its value.

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9. What is the importance of keywords in C?

Keywords are reserved identifiers
They performs a specific task , specifies the data type
Keyword can not be used as an identifier
Ex: for , if , int

10. List out various Input & output statements in C?

The input & output statements are classified into formatted & unformatted I?O
Formatted I/O : User can able to design/format the output
Unformatted I/O: doesn't allow the users to design the output
Type Input Output
Formatted scanf() printf()
Unformatted Getch(), getche()
getchar()
gets()
putch(), putchar()
puts()

11. What is meant by linking process?
Linking is a process of binding the function call to its definition and binding the label to its reference. During the linking process the object file is created. This file can be loaded into memory for execution

12. Define C?
C is a structured programming language.
c was developed in 1970s by Dennis Ritchie at bell telephone labarotries.

13.What are character set?
1.letters
2.digits
3.special characters
4.white space

14.Define c tokens?
The smallest individual units are known as c tokens.

15.Define constant?
Constants are fixed values that do not change during the execution of the program.

16.What is identifier?

Identifiers are referring to the names of variables, functions and arrays. These are the user -
defined names.

17.Define string constants?

A string constant is a sequence of character enclosed in double quotes.
Example: "hello"

18.What is variable?

A variable is data name that may be used to store the value.

19. Write short notes about main ( ) function in 'C' program. (MAY 2009)

· Every C program must have main ( ) function.

· All functions in C, has to end with '( )' parenthesis.

· It is a starting point of all 'C' programs.

· The program execution starts from the opening brace '{ ' and ends with closing brace

'}', within which executable part of the program exists.

20.Define void?

Void is an empty data type. It returns nothing. The void type has no value.

21.Define operators?

An operator is a symbol that is to perform mathematical or logical manipulation. It is used in
program to
manipulate data and variables.

22.Define type conversion?

The operands are different types in the expression. The lower type is automatically converted
to the higher type
before the operation proceeds.

23.Define type caste Operators?

The process of such local conversion of variable is known as casting value or type modifier
or type caste
operator.

24.Define expressions?
The combination of operand and operators form the expression.
The operand may be variable or constants

25. What are the different data types available in 'C'?

There are four basic data types available in 'C'.

1. int

2. float

3. char

4. double

26. What are Keywords?

Keywords are certain reserved words that have standard and pre-defined meaning in

'C'. These keywords can be used only for their intended purpose.

27. What is an Operator and Operand?

An operator is a symbol that specifies an operation to be performed on operands.

Example: *, +, -, / are called arithmetic operators.

The data items that operators act upon are called operands.

Example: a+b; In this statement a and b are called operands.

28. What is Ternary operators or Conditional operators?

Ternary operators is a conditional operator with symbols ? and :

Syntax: variable = exp1 ? exp2 : exp3

If the exp1 is true variable takes value of exp2. If the exp2 is false, variable takes the value of exp3.

29. What are the Bitwise operators available in 'C'?

& - Bitwise AND

| - Bitwise OR

~ - One's Complement

>> - Right shift

<< - Left shift

^ - Bitwise XOR are called bit field operators

Example: k=~j; where ~ take one's complement of j and the result is stored in k.

30. What are the logical operators available in 'C'?

The logical operators available in 'C' are

&& - Logical AND

|| - Logical OR

! - Logical NOT

31. What is the difference between Logical AND and Bitwise AND?

Logical AND (&&): Only used in conjunction with two expressions, to test more than one condition. If both the conditions are true the returns 1. If false then return 0.

AND (&): Only used in Bitwise manipulation. It is a unary operator.

32. What is the difference between '=' and '==' operator?

Where = is an assignment operator and == is a relational operator.

Example:

while (i=5) is an infinite loop because it is a non zero value and while (i==5) is true only when i=5.

33. What is type casting?

Type casting is the process of converting the value of an expression to a particular data type.

Example:

int x,y;

c = (float) x/y; where a and y are defined as integers. Then the result of x/y is converted into float.

34. What is conversion specification?

The conversion specifications are used to accept or display the data using the

INPUT/OUTPUT statements.

35. What is the difference between 'a' and "a"?

'a' is a character constant and "a" is a string.

36. What is the difference between if and while statement?

if	while
(i) It is a conditional statement	(i) It is a loop control statement
(ii) If the condition is true, it executes some statements.	(ii) Executes the statements within the while block if the condition is true.
(iii) If the condition is false then it stops the execution the statements.	(iii) If the condition is false the control is transferred to the next statement of the loop.

37. What is the difference between while loop and do…while loop?

In the while loop the condition is first executed. If the condition is true then it executes the body of the loop. When the condition is false it comes of the loop. In the do…while loop first the statement is executed and then the condition is checked. The do…while loop will execute at least one time even though the condition is false at the very first time.

38. What is a Modulo Operator?

'%' is modulo operator. It gives the remainder of an integer division

Example:

a=17, b=6. Then c=%b gives 5.

39. How many bytes are occupied by the int, char, float, long int and double?

int - 2 Bytes

char - 1 Byte float - 4 Bytes long int - 4 Bytes double - 8 Bytes

40. What are the types of I/O statements available in 'C'?

There are two types of I/O statements available in 'C'.

· Formatted I/O Statements

· Unformatted I/O Statements

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41. What is the difference between ++a and a++?

++a means do the increment before the operation (pre increment) a++ means do the increment after the operation (post increment) **Example:**

a=5;

x=a++; /* assign x=5*/

y=a; /*now y assigns y=6*/

x=++a; /*assigns x=7*/

---

42. What is a global variable?

The global variable is a variable that is declared outside of all the functions. The

global variable is stored in memory, the default value is zero. Scope of this variable is available in all the functions. Life as long as the program's execution doesn't come to an end.

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43. What are the Escape Sequences present in 'C'

\n - New Line

\b - Backspace

\t - Form feed

\' - Single quote

\\ - Backspace

\t - Tab

\r - Carriage return

\a - Alert

\" - Double quotes

---

44. Construct an infinite loop using while?

while (1)

{

}

Here 1 is a non zero, value so the condition is always true. So it is an infinite loop.

45. Write the limitations of getchar( ) and sacnf( ) functions for reading strings (JAN 2009)

getchar( )

To read a single character from stdin, then getchar() is the appropriate.

scanf( )

scanf( ) allows to read more than just a single character at a time.

46. What is the difference between scanf() and gets() function?

In scanf() when there is a blank was typed, the scanf() assumes that it is an end.

gets() assumes the enter key as end. That is gets() gets a new line (\n) terminated string of characters from the keyboard and replaces the '\n' with '\0'.

47. What is meant by Control String in Input/Output Statements?

Control Statements contains the format code characters, specifies the type of data that the user accessed within the Input/Output statements.

48. What is the output of the programs given below?

main() main()

{ {

float a; float a;

int x=6, y=4; int x=6, y=4;

a=x\y; a=(float) x\y;

printf("Value of a=%f", a); printf("Value of a=%f",a);

} }

Output: Output:

1. 1.500000

49. What is the output of the following program when, the name given with spaces?

main()

{

char name[50]; printf("\n name\n"); scanf("%s, name); printf("%s",name);

}

Output:

Lachi (It only accepts the data upto the spaces)

50. What is the difference between while(a) and while(!a)?

while(a) means while(a!=0)

while(!a) means while(a==0)

51. Why we don't use the symbol '&' symbol, while reading a String through scanf()?

The '&' is not used in scanf() while reading string, because the character variable

itself specifies as a base address.

Example: name, &name[0] both the declarations are same.

52. What is the output of the program?

main()		increment()
{		{
increment();		static int i=1;
increment();		printf("%d\n",i)
increment();		i=i+1;
}		}
OUTPUT:	3	
1 2		

53. Why header files are included in 'C' programming?· This section is used to include the function definitions used in the program.

· Each header file has 'h' extension and include using '# include' directive at the beginning of a program.

54. List out some of the rules used for 'C' programming.

· All statements should be written in lower case letters. Upper case letters are only for

symbolic constants.

· Blank spaces may be inserted between the words. This improves the readability of statements.

· It is a free-form language; we can write statements anywhere between '{' and '}'. a = b + c;

d = b*c;

(or)

a = b+c; d = b*c;

· Opening and closing braces should be balanced.

55. Define delimiters in 'C'.

	Delimiters	Use
:	Colon	Useful for label
;	Semicolon Parenthesis Square Bracket Curly	Terminates Statement
( ) [ ]	Brace Hash	Used in expression and functions
{ }	Comma	Used for array declaration Scope of statement Preprocessor directive
#		Variable Separator
,		

56. What do you mean by variables in 'C'?

· A variable is a data name used for storing a data value.

· Can be assigned different values at different times during program execution.

· Can be chosen by programmer in a meaningful way so as to reflect its function in the program.

· Some examples are: Sum percent_1 class_total

57. List the difference between float and double datatype.

S No	Float	Double Float / Double
1	Occupies 4 bytes in memory	Occupies 8 bytes in memory
2	Range : 3.4 e-38 to 3.8e+38	Range : 1.7 e-308 to 1.7e+308
3	Format Specifier: % f	Format Specifier: % lf
4	**Example :** float a;	**Example :** double y;
		There exists long double having a range of 3.4 e -4932 to 3.4 e +4932 and occupies 10 bytes in memory.
		Example: long double k;

58. Differentiate break and continue statement

S No	break	continue
1	Exits from current block / loop	Loop takes next iteration
2	Control passes to next statement	Control passes to beginning of loop
3	Terminates the program	Never terminates the program

59. List the types of operators.

S No	Operators Types	Symbolic Representation
1	Arithmetic operators	= , - , * , / and %
2	Relational operators	> , < , == , >=, <= and !=
3	Logical operators	&& , || and !
4	Increment and Decrement operators	++ and –
5	Assignment operators	= , + = , - = , * = , / = , ^ = , ; = , & =
6	Bitwise operators Comma operator Conditional operator	& , | , ^ , >> , << , and ~
7		,
8		? :

60. Distinguish between while..do and do..while statement in C. (JAN 2009)

While..DO   **DO..while**

(i) Executes the statements within the while block if only the condition is true.	(i) Executes the statements within the while block at least once.
(ii) The condition is checked at the starting of the loop	(ii) The condition is checked at the end of the loop

61. Compare switch( ) and nestedif statement.

S No	switch( ) case	nested if
1	Test for equality ie., only constant	It can equate relational (or)
2	values are applicable.	logical expressions.
3	No two case statements in	Same conditions may be repeated for a number of
4	same switch.	times.
	Character constants are automatically converted to integers.	Character constants are automatically converted to integers.
	In switch( ) case statement nested if can be used.	In nested if statement switch case can be used.

62. Distinguish Increment and Decrement operators.

S No	Increment ++	Decrement --
1	Adds one to its operand	Subtracts one from its operand
2	Equivalent x = x + 1	Equivalent x = x - 1
3	Either follow or precede operand	Either follow or precede operand
4		**Example** : --x; x--;
	Example : ++x; x++;	

63. Give the syntax for the 'for' loop statement

for (Initialize counter; Test condition; Increment / Decrement)

{

statements;

}

· Initialization counter sets the loop to an initial value. This statement is executed only once.

· The test condition is a relational expression that determines the number of iterations desired or it determines when to exit from the loop. The 'for' loop continues to execute as long as conditional test is satisfied. When condition becomes false, the control of program exists the body of the 'for' loop and executes next statement after the body of the loop.

· The increment / decrement parameter decides how to make changes in the loop.

· The body of the loop may contain either a single statement or multiple statements.

64. What is the use of sizeof( ) operator?

· The sizeof ( ) operator gives the bytes occupied by a variable.

· No of bytes occupied varies from variable to variable depending upon its data types.

Example:

int x,y;

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

Output:

2

65. What is a loop control statement?

Many tasks done with the help of a computer are repetitive in nature. Such tasks

can be done with loop control statements.

66. What are global variable in 'C'?

· This section declares some variables that are used in more than one function. such

variable are called as global variables.

· It should be declared outside all functions.

67. Write a program to swap the values of two variables (without temporary variable).

```c
#include <stdio.h>

#include <conio.h>

void main( )

{

int a =5; b = 10;

clrscr( );

prinf("Before swapping a = %d b = %d ", a , b);

a = a + b; B = a – b;

a = a – b;

prinf("After swapping a = %d b = %d", a,b);

getch( );

}
```

Output:

Before swapping a = 5 b = 10

After swapping a = 10 b = 5