

TCS Ninja Programming MCQ's with solutions

TCS Ninja Programming MCQs (Standard section)

1)

```
#include
int main(int argc, char **argv)
{
    char **items;
    int j = 3, i;
    items = argv;
    for(i = 1; (i%4); i++)
    {
        int **p = &items[j];
        printf("%c", **p);
        j--;
    }
    return 0;
}
```

The above code is run with three command line parameters mentioned here:**Paper Ink Pen**

What will be the output of the above program?

- a) PIP
- b) Pen
- c) Pap
- d) Ink

Answer: a

2) Improper formation of which of the following data-structures can cause unintentional looping of a program that uses it.

- a) Linked list
- b) Array
- c) Queue
- d) Stack

Answer: a

3) What is the data type that occupies the least storage in "C" language?

Please give the answer in the blank line: _____

Answer: char

4) Which of the following is true?

- a) Array is a dynamic data structure whose size can be changed while stacks are static data structures whose sizes are fixed.
- b) Array elements can be accessed and modified (elements can be added or removed) only at the ends of the array while any elements of the stack can be accessed or modified randomly through their indices.
- c) An array can have elements of different data types.
- d) Elements of a linked-list can be accessed only sequentially.

Answer: d

5) Which of the following statements is FALSE?

- a) The time complexity of binary search is $O(\log n)$.
- b) A linear search requires a sorted list.
- c) A binary search can operate only on a sorted list.
- d) The time complexity of linear search is $O(n)$.

Answer: b

6) Eesha wrote a function `fact()` in "C" language to calculate factorial of a given number and saved the file as `fact.c`. She forgot to code the main function to call this `fact` function. Will she be able to compile this `fact.c` without the `main()` function?

- a) Yes, she can compile provided the compiler option `-no strict-checking` is enabled.
- b) No, she can not compile as the main function is required to compile any C program file.
- c) Yes, she can compile as `main()` is not required at compile time.
- d) Yes, she can compile and run as the system will supply default values to `fact` function.

Answer: b

7) The difference between variable declaration and variable definition is:

- a) Declaration and definition are the same. There is no difference.
- b) A declaration is used for variables and definitions is used for functions.
- c) Declaration associates type to the variable whereas definition associates scope to the variable.
- d) Declaration associates type to the variable whereas definition gives the value to the variable.

Answer: d

TCS Ninja Programming Concepts (Advanced Section)

1) The in order and pre order traversal of a binary tree are db ea fc g and a bd ec f g, respectively. The post-order traversal of the binary tree is:

- a) d eb fg c a
- b) de fgb ca
- c) e db fg ca
- d) e db gf c a

Answer:a

2) Eesha wrote a recursive function that takes the first node in a linked list as an argument, reverses the list, returning the first Node in the result. The pseudo code for this function is given below. However, she did not get the correct result. In which line number did she make a mistake?

Please give the answer in the blank line: _____

```
public Node reverse(Node first)
{
    if (first == null) return null;
    if (first.next == null) return first;
    Node second = first.next;
    Node rest = reverse (second);
    second.next = first;
    first.next = null;
    return rest.next;
}
```

Answer: return rest

3) The longest common subsequence (LCS) problem is the problem of finding the longest subsequence common to a set of sequences (often just two sequences). A subsequence is a sequence that can be derived from another sequence by deleting some or no elements without changing the order of the remaining elements. One form of implementation of LCS function is given below. The function takes as input sequences $X[1..m]$ and $Y[1..n]$, computes the length of the Longest common subsequence between $X[1..i]$ and $Y[1..j]$ for all $1 \leq i \leq m$ and $1 \leq j \leq n$, and stores it in $C[i,j]$. $C[m,n]$ will contain the length of the LCS of X and Y .

```
function LCSLength(X[1..m], Y[1..n])
C = array(0..m, 0..n)
for i:= 0..m
C[i,0] =0
for j := 0..n
C[0,j] = 0d
for i := 1..m
for j := 1..n
if X[i] = Y[j]
C[i,j] := C[i-1, j-1] + 1
else
C[i,j] := max(C[i, j-1], C[i-1, j])
return C[m, n]
```

Eesha used the above algorithm to calculate the LCS length between "kitten" and "string". What was the result she got? Please give the answer in the blank line. _____

Answer: 2

TCS Ninja Programming MCQ's (previously asked)

1) How many times the below loop will be executed?

```
#include<stdio.h>
int main()
{
    int x, y;
    for(x=5;x>=1;x--)
    {
        for(y=1;y<=x;y++)
            printf("%dn",y);
    } }
```

- A. 15
- B. 11
- C. 10
- D. 13

Solution: Option A

2) Where are the local variables stored?

- A. Disk
- B. Stack
- C. Heap
- D. Code

Solution: Option B

3) Which datatype has more precision?

- A. double
- B. float
- C. int
- D. long int

4) Find the output of the following code?

```
int main
{
float f = 0.1;
if (f = 0.1)
printf (yes);
else print (no);
}
```

5) What will happen if in a C program you assign a value to an array element whose subscript exceeds the size of array?

- A. The element will be set to 0.
- B. The compiler would report an error.
- C. The program may crash if some important data gets overwritten.
- D. The array size would appropriately grow.

Solution: Option C

Explanation: If the index of the array size is exceeded, the program will crash. Hence "option c" is the correct answer. But the modern compilers will take care of this kind of errors.

6) What does the following declaration mean?

int (*ptr)[10];

- A. ptr is array of pointers to 10 integers
- B. ptr is a pointer to an array of 10 integers
- C. ptr is an array of 10 integers
- D. ptr is an pointer to array

Solution: Option B

7) In C, if you pass an array as an argument to a function, what actually gets passed?

- A. Value of elements in array
- B. First element of the array
- C. Base address of the array
- D. Address of the last element of array

Solution: Option C

Explanation: The statement 'C' is correct. When we pass an array as a function argument, the base address of the array will be passed.

8) What will be the output of the program?

```
#include<stdio.h>
int main()
{
    int a[5] = {5, 1, 15, 20, 25};
    int i, j, m;
    i = ++a[1];
    j = a[1]++;
    m = a[i++];
    printf("%d, %d, %d", i, j, m);
    return 0;
}
```

- A. 2, 1, 15
- B. 1, 2, 5
- C. 3, 2, 15
- D. 2, 3, 20

Solution: Option C

Explanation:

Step 1: `int a[5] = {5, 1, 15, 20, 25};` The variable `arr` is declared as an integer array with a size of 5 and it is initialized to

`a[0] = 5, a[1] = 1, a[2] = 15, a[3] = 20, a[4] = 25 .`

Step 2: `int i, j, m;` The variable `i, j, m` are declared as an integer type.

Step 3: `i = ++a[1];` becomes `i = ++1;` Hence `i = 2` and `a[1] = 2`

Step 4: `j = a[1]++;` becomes `j = 2++;` Hence `j = 2` and `a[1] = 3.`

Step 5: `m = a[i++];` becomes `m = a[2];` Hence `m = 15` and `i` is incremented by 1 (`i++` means `2++` so `i=3`)

Step 6: `printf("%d, %d, %d", i, j, m);` It prints the value of the variables `i, j, m`

Hence the output of the program is 3, 2, 15

9) Is there any difference in the following declarations?

`int fun(int arr[]);`

`int fun(int arr[2]);`

A. Yes

B. No

Solution: Option B

Explanation:No, both the statements are the same. It is the prototype for the function `fun()` that accepts one integer array as a parameter and returns an integer value.

10) Are the expressions `arr` and `&arr` same for an array of 10 integers?

A.Yes

B.No

Solution: Option B

Explanation:Both mean two different things. `arr` gives the address of the first int, whereas the `&arr` gives the address of array of ints.

11) Which of the following statements should be used to obtain a remainder after dividing 3.14 by 2.1?

A. `rem = 3.14 % 2.1;`

B. `rem = modf(3.14, 2.1);`

C. `rem = fmod(3.14, 2.1);`

D. Remainder cannot be obtained in floating point division.

Solution: Option C

Explanation:

fmod(x,y) - Calculates x modulo y, the remainder of x/y.

This function is the same as the modulus operator. But fmod() performs floating point divisions.

12) What are the types of packages?

- A. Internal and External
- B. External, Internal and None
- C. External and None
- D. Internal

Solution: Option B

13) Which of the following special symbols are allowed in a variable name?

- A. * (asterisk)
- B. | (pipe)
- C. - (hyphen)
- D. _ (underscore)

Solution: Option D

Explanation: Variable names in C are made up of letters (upper and lower case) and digits. The underscore character ("_") is also permitted. Names must not begin with a digit.

14) Is there any difference between following declarations?

1 : `extern int fun();`

2 : `int fun();`

A. Both are identical

B. No difference, except `extern int fun();` is probably in another file

C. `int fun();` is overridden with `extern int fun();`

D. None of these

Answer: Option B

Explanation: `extern int fun();` declaration in C is to indicate the existence of a global function and it is defined externally to the current module or in another file.

`int fun();` declaration in C is to indicate the existence of a function inside the current module or in the same file.

15) In C language, if a function return type is not explicitly defined then it defaults to what data type?

Answer: Int

16) Which of the following syntax is correct for command -line arguments?

a) `int main (char *argv[], intargc)`

b) none of the three options

c) `int main () { intargv, char *argc[]; }`

d) `int main(int var, char *varg[])`

Answer: `int main (int var,char *varg[])`

17) The full set of operations allowed on a stack are

a) Push, pop

b) Push, pop, remove

c) Push, pop, add, remove

d) Push,pop,add,remove,substitute

Answer: push, pop

18) Realloc() function is used to:

- a) Get back the memory that was released earlier using free() function
- b) Reallocate a file pointer when switching between files
- c) Change the size of an array
- d) Change the size of the dynamically allocated memory

Answer: change the size of dynamically allocated memory

19) Which of the below is NOT a data type in C language:

- a) Signed int
- b) Big int
- c) Short int
- d) Long int

Answer: Big int

20) Eesha wants to implement an image viewer application to view images in a given folder. The application will be able to display an image and will also know what its next and previous images are at any given point of time so that the user can view next/previous image by pressing right/left keys on the keyboard. Which data structure is appropriate for Esha to use?

- a) Tree
- b) Queue
- c) Linked list
- d) Stack

Answer: Linked list

21) The pseudo code below sorts an array using bubble sort. Here A is the array and the n is the number of elements in it. Function swap exchanges the value of 2 given values.

```

1  Function bubbleSort(A, n)
2  {
3      For i = 0 to n-2 step 1
4          For j = 0 to n-i-2 step 1
5              If (A(j) > A(j+1))
6                  swap(A(j), A(j+1))
7  }

```

This function is called with A and 7 as parameter where the array initially contains the element 64, 34, 25, 12, 22, 11, 9

- a) 34 25 12 22 11 9 64
- b) 25 12 22 11 9 34 64
- c) 11 9 12 22 25 34 64
- d) 12 11 9 22 25 34 64

Answer: 25 12 22 11 9 34 64

22) #define is used to

- a) Define a variable
- b) Define a macro
- c) Define a function
- d) Define a constant

Answer: Define a macro

23) What type of data structures are queues?

- a) First in last out
- b) First in first out
- c) Last in first out
- d) Last in last out

Answer: First in first out

24) Which of the following is NOT a valid storage class in C language?

- a) Extern

b)Dynamic

c)Register

d)Auto

Answer: Dynamic

25) Eesha is developing a word processing software in which she wants to provide undo feature. The software will maintain all the sequential changes and at any point of time pressing control z will undo the latest change, what data structure should Eesha use for this?

a)Stack

b)Queue

c)Linked list

d) Array

Answer: Stack

26) #include

Main(intargc,char**argv)

{

printf("%sn,argv[--argc]);

Return 1;

}

The above program was run with the following command line parameters

Asha usha nisha easha

What was the output?

a) Nisha

b) Unable to run due to compilation error

c) No output, runtime error

d) easha

Answer: easha