

Visteon interview - Questions C/C++ Python

[DOCUMENT SUBTITLE]

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Python

Beginner

1. What is needed to execute a python script via command line?
2. What symbol can you use to comment out one line of code?
3. How to get the last element of an array?
4. How you can find a string into another?
5. How to manage exceptions in python?
6. In Python, what is one function to output content to the console?
7. How do you create a variable "a" that is equal to 10?

Medium

1. What are lambda functions?
2. What is decorators and when they have been added to the python?
3. How would you cast the string variable "a" that is equal to "2" into the integer 2?
4. How to find a string into array of strings?
5. How can be defined a function in Python?
6. What will be the output of the code below? Explain your answer.

```
class Parent(object):  
    x = 1  
  
class Child1(Parent):  
    pass  
  
class Child2(Parent):  
    pass  
  
print Parent.x, Child1.x, Child2.x  
  
Child1.x = 2  
  
print Parent.x, Child1.x, Child2.x  
  
Parent.x = 3  
  
print Parent.x, Child1.x, Child2.x
```

7. Consider the following code snippet:

```
1. list = [ [ ] ] * 5  
2. list # output?  
3. list[0].append(10)  
4. list # output?  
5. list[1].append(20)  
6. list # output?
```

```
7. list.append(30)
8. list # output?
```

What will be the output of lines 2, 4, 6, and 8

8. How can the ternary operators be used in python?
9. What is the function of "self"?

Advanced

1. What is abstract class/method, do we have such in python? Example how it can be used in python.
2. What is method overload, do we have it in python? Example how we can use it in python.
3. What is polymorphism?
4. What will be the output of the code below in Python 2? Explain your answer.

```
def div1(x,y):
    print "%s/%s = %s" % (x, y, x/y)

def div2(x,y):
    print "%s//%s = %s" % (x, y, x//y)

div1(5,2)

div1(5.,2)

div2(5,2)

div2(5.,2.)
```

5. What is the difference between deep and shallow copy?
6. What is the function of negative index?
7. Write a program to show the singleton pattern used in python
8. Write a program to check whether the object is of a class or its subclass.

C

Beginner

1. What is the difference between a definition and a declaration of a variable?
2. How is a variable accessed from another file?
3. How many bytes are allocated by the definition below?

```
char txt [20] = "Hello world!\0";
```

Medium

1. How do I initialize a pointer to a function?
2. In the following code what is constant, p or the character it is pointing to?

```
typedef char *charp;
```

```
const charp p;
```

3. What is the difference in the following declarations?

```
const char *s;
```

```
char const *s;
```

4. What is the difference between pointer and reference ?
5. How many declarations a global variable may have?
6. What would be the output of the following program? (Why)

```
main()
{
    int a[5] = {2, 3};
    printf ("%d %d %d", a[2], a[3], a[4]);
}
```

7. What is the difference in the following declarations?

```
char *p = "Samuel";
```

```
char a[] = "Samuel";
```

8. What's the output of the following code:

```
char a[] = "string 1";  
char *p = "string 2";  
a = "new string 1";  
p = "new string 2";  
printf("a=%s, p=%s",a,p);
```

9. Where can be 'break' statement is used in code?

Advanced

1. What does "linkage" mean? What are the different types of linkages?
2. Can we use a switch statement to switch on strings?
3. What would be the output of the following program?(Explain why)

```
main()  
{  
    int i = 2;  
    printf("%d %d", ++i, ++i);  
}
```

4. Would the following program output? I will always output the same value?

```
struct ex  
{  
    char ch;  
    int i;  
    long int a;  
};  
printf("%d",sizeof(ex));
```

5. The preprocessor can detect simple errors like missing declarations, nested comments or mismatch of braces?(How?)
6. Are the three declarations `char **apple`, `char *orange[]`, and `char cherry[][]` equivalent? (Explain)
7. What does the following declaration represent:

```
int* (*fp[10])(int*)(int*), int);
```

C++

Beginner

1. Will the inline function be compiled as the inline function always? Justify.
2. Explain the term POLIMORPHISM and give an example using
3. eg. SHAPE object: If I have a base class SHAPE, how would I define DRAW methods for two objects CIRCLE and SQUARE
4. Is it possible to have Virtual Constructor? If yes, how?
5. What is the difference between declaration and definition?
6. Define namespace in C++
7. Which of the following operators below allow to define the member functions of a class outside the class?

Medium

1. What is the size of an int datatype for a 64 bit system?
2. What is the difference between a copy constructor and an overloaded assignment operator?
3. What is the difference between Mutex and Binary semaphore?
4. How do I initialize a pointer to a function?
5. What are the differences between new and malloc?
6. When can you tell that a memory leak will occur?
7. Is it possible to have Virtual Constructor? If yes, how? If not, Why not possible ?
8. How do you know that your class needs a virtual destructor?
9. What is a container class? What are the types of container classes?
10. How many ways are there to initialize an int with a constant?
11. What is friend function?
12. What is reinterpret_cast used for?

Advanced

1. What is memory alignment?
2. Present one why in which class inheritance can lead to memory leaks
3. When is a template a better solution than a base class?
4. What is an adaptor class or Wrapper class?
5. What is RTTI?
6. Which type of casting can be used only with pointers and references to objects?
7. Describe exception handling in C++
8. How you distinguish between an overloaded postfix increment operator and a prefix one?