Q1

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Q2

a)

Interpretation	**Compilation**
When translation of source code into machine code is done "Statement by Statement".	When translation of source code into machine code is done at once .
Used generally to generate Web-Based Scripts.	Used to generate most Software Applications
Advantages: 1) Testing the program is easier for developers,as the code is translated and executed line by line.If an error occurs within in the program it is easier to pinpoint the statement that led to the error. 2) Faster editing and running of code.	Advantages: 1) Programs are able to perform at full capacity due to no translation of source code being required during run-time. 2) Once made executable, compilation is no longer necessary in future uses of the software. 3) Due to it being difficult to access the source code again after compilation,it protects the source code from manipulation from other bodies.
Disadvantages: 1) Due to code being translated during run-time, it impacts on the functionality of the software. 2) Source Code is accessible and may lead to issues if distributed in this form.	Disadvantages: 1) Difficult to access the source code again after compilation.

b)

C	Python
C is mainly used for hardware related applications.	Python is general purpose programming language
Follows an imperative programming model.	Follows object-oriented programming language
Pointers are available in C.	No pointers functionality available in python.
C uses compiler.	Python uses an interpreter.
A limited number of built-in functions.	Large library of built-in functions.
Code execution is faster than python.	Slower compared to C as python has garbage collection.
Implementing data structures required its functions to be explicitly implemented.	Gives ease of implementing data structures with built-in insert, append functions.
It is compulsory to declare the variable type in C.	No need to declare a type of variable.
C program syntax is harder than python.	Python programs are easier to learn, write and read.

Positive and Negative Aspects:

C is mainly used for hardware related application development such as operating systems, network drivers.C is far more difficult to write and maintain. Hence for easy development process python is best.	Python is a language which is used for machine learning, web development and many more.Python has very fewer keywords and more of easy english language syntax.
Faster than Python	Python is much slower than C as python takes significant CPU time for interpretation.

Q3

Python code:

1. a = 10
Type of variable: int
Variable comes to existance when it is initialised.

2. b = 4
Type of variable: int
Variable comes to existance when it is initialised.

3. c = 3. 4
Type of variable: float
Variable comes to existance when it is initialised.Variable type is defined automatically

4. d = a / 10
Type of variable: int
Integer can be divided by an integer and the output is also an integer.

5. e = b * c
Type of variable: float
If we multiply integer with float the output is in float.

6. a = a * e
Type of variable: float
Now the type of variable of ‘a’ has changed from int to float so we can conclude that here in python variable type is not fixed.

7. s = "IIITB"
Type of variable: str
for strings “”(double quotes) are used.

8. t = a + s
#Error ==> TypeError: unsupported operand type(s) for +: 'int' and 'str'
we cannot add integer and string directly we have to convert integer to string first.