INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)
Dundigal, Hyderabad - 500 043

CIVIL ENGINEEERING

DEFINITIONS AND TERMINOLOGY QUESTION BANK

Course Name	:	**PROGRAMMING FOR PROBLEM SOLVING USING PYTHON**
Course Code	:	ACSB38
Program	:	**B.Tech**
Semester	:	**II**
Branch	:	**CIVIL**
Section	:	**A | B | C | D**
Academic Year	:	**2019 - 2020**
Course Faculty	:	**Dr. P Govardhan, Associate Professor** **Ms. N Jayanthi, Assistant Professor** **Ms. P Sasmita, Assistant Professor**

COURSE OBJECTIVES:

The course should enable the students to:	
I	Understand the fundamentals of Python programming concepts and its applications.
II	Improve problem solving skills using control structures and list.
III	Understand the basics of object-oriented concepts using Python.
IV	Describe string handling to solve real-time problems.
V	Design and implement programs using functions.

DEFINITIONS AND TERMINOLOGY QUESTION BANK

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
MODULE-I						
1	Explain features of Python programming language?	• It supports both procedural and object-oriented programming language. • It is a high-level and case sensitive language. • It is an interpreted and type less language. • It works on the principle of automatic memory management. • Free and open source software.	Remember	CO1	CLO1	ACSB38.01
2	What is the role of Python Interactive	Python provides an interactive shell, which is used in between the user and OS. One can work with the Python interpreter from	Remember	CO1	CLO2	ACSB38.02

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	shell?	an interactive shell. Python Commands are run using the Python interactive shell.				
3	What are the different modes of working in Python?	There are two modes: interactive mode and script mode. Interactive mode allows the user to interact with the OS and in script mode, a user types a program in a file and then the interpreter executes the file.	Remember	CO1	CLO2	ACSB38.02
4	What are the various flavors of Python?	Some of the popular flavors or Python compilers are: • CPython • Jython • Pypy • RubyPython • IronPython • ActivePython	Remember	CO1	CLO3	ACSB38.03
5	What are the rules for identifier?	• An identifier must start with a letter or underscore. • It can be of any length and can contain letters, digits and underscore. • It can't be a reserve word.	Remember	CO1	CLO4	ACSB38.04
6	How to check the number of keywords in Python?	One can check the number of keywords using the help() command in Python.	Remember	CO1	CLO2	ACSB38.02
7	Define bound and unbound variable.	A variable that has been assigned a variable is called a bound variable; otherwise it is called an unbound or undefined variable.	Remember	CO1	CLO1	ACSB38.01
8	What are the standard data types in Python?	Python has five standard data types, named Numbers, None, Sequences, Sets and Mappings. Python sets the type of variable based on the type of value assigned to it and it will automatically change the variable type if the variable is set to some other value.	Remember	CO1	CLO4	ACSB38.04
9	Define python identifier	Python identifier is a name used to identify a variable,function, class,module or other object.	Remember	CO1	CLO2	ACSB38.02
10	How to use byte-code ?	The internal representation of a Python program in the interpreter. The byte code is also cached in .pyc and .pyo files so that executing the same file is faster the second time (the step of	Remember	CO1	CLO1	ACSB38.01

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		compilation from source to byte code can be saved).				
11	Define Bitwise Operator?	Bitwise Operator works on Bits and Perform Bit by Bit Operation.	Remember	CO1	CLO4	ACSB38.04
12	Write rules for python identifier?	• An identifier starts with aletter A-Z or a-z or _ followed by zero or more letters, underscores and digits.	Remember	CO1	CLO3	ACSB38.03
13	What is a keyword in python?	Python keyword is a special word that forms the vocabulary of a python language.It is a reserved word that cannot be used as an identifier.	Understand	CO1	CLO3	ACSB38.03
14	List out the operators in Python.	There are various types of operators in Python: • Arithmetic operators: +, -, *, /, %, **, // • Relational operators: <, <=, >, >=, != , == • Logical operators: or, and, not • Augmented Assignment Operators: =, +=, -=, *=, /=, %=, **=, //=	Remember	CO1	CLO3	ACSB38.03
15	List out some python keyword?	False,def,if,true,elif,else,and,as,in, is,break,for etc.	Remember	CO1	CLO4	ACSB38.04
16	Different types of datatypes in python?	Boolan, numbers, strings, bytes,lists,tuples,sets,dictionaries.	Remember	CO1	CLO4	ACSB38.04
17	Define Boolean datatype?	A Boolean is such a datatype that almost every programming languge has,and so is python.Boolean in python has 2 values TRUE or FALSE	Remember	CO1	CLO2	ACSB38.02
18	Define membership operator?	Python membership operator test for membership in the sequence such as strings list or tuples.	Understand	CO2	CLO3	ACSB38.03
19	List out different types of operators in python.	Arithmetic operators, Assignment Operators, Comparison Operators, Logical Operator, Identity Operators, Membership Operators, Bitwise Operators	Understand	CO2	CLO4	ACSB38.04
20	Define a method.	Methods are functions defined inside a class. They can be accessed by the objects by using dot operator. All the methods in class have self as first parameter.	Understand	CO2	CLO1	ACSB38.01

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MODULE-II						
1	Define a control structure?	A control structure is a block of programming that analyzes variables and decides which statement to execute next, based on the given parameters. The term 'control' denotes the direction in which the program flows. Usually, loops are used to execute a control statement, a certain number of times.	Understand	CO2	CLO5	ACSB38.05
2	What is the difference between multiple if statements and if… elif statement?	When we use multiple if, even when the first if condition is true, the control will check the second if condition as well. But if we use elif, the statement will check the elif condition only when the previous if/elif condition is false.	Remember	CO2	CLO7	ACSB38.07
3	What are the various types of loops in Python?	Loops are used to repeat a set of statements single statement , a certain number of times. In Python, there are two loops, for loop and while loop. The Python for loop also works as an iterator to iterate over items in list/dictionary or characters in strings	Remember	CO2	CLO6	ACSB38.06
4	List the standard data types in Python.	Python has five standard data types 1.Numbers 2. String 3. List 4. Tuple 5. Dictionary	Remember	CO2	CLO8	ACSB38.08
5	What is if condition?	A conditional execution statement which executes some code if a statement is True, and doesn't if its false. ex: if x == 1: print "y"	Remember	CO2	CLO7	ACSB38.07
6	How else will declare?	The final conditional execution statement following an 'if'. ex: if x==1: do1 elif x==2: do2 else: do3.	Remember	CO2	CLO6	ACSB38.06

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
7	Define OR?	A boolean operator that compares if either condition is True, and returns True if so. ex. if (1==1 or 1==2):arguments involved.	Remember	CO2	CLO8	ACSB38.08
8	Define Range Function?	Range function returns a sequence of numbers ,starting from '0' by default,and increments by 1 and ends at a specified number.	Understand	CO2	CLO7	ACSB38.07
9	Write syntax for range() function	Range(start,stop,step)	Understand	CO2	CLO6	ACSB38.06
10	Define break Statement?	A break statement terminates the current loop and resumes execution at the next statement.	Remember	CO2	CLO7	ACSB38.07
11	Define Continue statement?	The Continue statement rejects all the remaining statements in the current iterations of the loop and moves the control back to the top of the loop.	Understand	CO2	CLO6	ACSB38.06
12	Define pass statement?	Python Pass statement is used when a statement is required syntactically but you do not want any command or code to execute.	Remember	CO2	CLO7	ACSB38.07
13	Define FOR loop?	A 'for' loop is a statement which repeats a group of statements a specified number of times.	Understand	CO2	CLO6	ACSB38.06
14	Write syntax for 'for'loop	For var in list: Statement-1 Statement-2	Remember	CO2	CLO7	ACSB38.07
15	Define 'while'loop ?	'While'loop is used to execute a block of statements repeatedly until a given condition is satisfy	Remember	CO2	CLO6	ACSB38.06
16	Syntax for 'while' loop.	While expression: Statements(s)	Remember	CO2	CLO7	ACSB38.07
17	Define nested loop in python?	Python programming allows to use one loop inside another loop.	Remember	CO2	CLO6	ACSB38.06
18	Define 'elif ' statement ?	'elif ' statement allows you check multiple expressions for TRUE and execute a block of code as soon as one of the conditions evaluates to TRUE.	Remember	CO2	CLO5	ACSB38.05
19	Write syntax for	If exp-1: Stmt(s)	Understand	CO2	CLO6	ACSB38.06

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
	'elif 'statement.	Elif exp-2: Stmt(s) Elif exp-3: Stmt(s) Else : Stmt(s)				
20	What is the use of conditional control structure?	A conditional control structure is used to execute statements based on some conditions.	Remember	CO2	CLO8	ACSB38.08
MODULE-III						
1	Define a List?	A list contains items separated by commas and enclosed within square brackets. A list in Python can contain heterogeneous data types.	Remember	CO3	CLO9	ACSB38.09
2	Define a Tuple?	A tuple contains a list of items enclosed in parentheses and none of the items cannot be updated. Hence tuples are immutable	Remember	CO3	CLO12	ACSB38.12
3	Define a Set and its types? Python sets are unordered collection of objects enclosed in parenthesis and there are basically two types of sets: Sets – These are mutable and • can be updated with new elements once sets are defined. Frozen Sets – These are • immutable and cannot be updated with new elements once frozen sets are created. Define a Set and its types?	Define a Set and its types? Python sets are unordered collection of objects enclosed in parenthesis and there are basically two types of sets: Sets – These are mutable and • can be updated with new elements once sets are defined. Frozen Sets – These are • immutable and cannot be updated with new elements once frozen sets are created.	Understand	CO3	CLO10	ACSB38.10
4	Define a dictionary?	Python dictionary data type consists of key-value pairs and it is enclosed by curly braces. Values can be assigned and accessed using square brackets.	Understand	CO3	CLO11	ACSB38.11
5	What are tuples in Python?	A tuple is another sequence data type that is similar to the list. A tuple consists of a number of values separated by commas. Unlike lists, however, tuples are enclosed within .	Remember	CO3	CLO12	ACSB38.12

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
6	How tuple represents in python?	Creating a tuple is as simple as putting different comma-separated values. Optionally you can put these comma-separated values between parentheses also.	Remember	CO3	CLO11	ACSB38.11
7	Delete tuple elements.	Removing individual tuple elements is not possible. There is, of course, nothing wrong with putting together another tuple with the undesired elements discarded. by commas. Unlike lists, however, tuples are enclosed within .	Remember	CO3	CLO10	ACSB38.10
8	Types in mutable and immutable function?	A "sort" or "category" of data that can be represented by a programming language. Types differ in their properties (such as mutability and immutability), the methods and functions applicable to them, and in their representations. Python includes, among others, the string, bytes, integer, long, floating point, list, tuple, and dictionary types.	Remember	CO3	CLO12	ACSB38.12
9	Write 'tuple' methods.	cmp(tuple1, tuple2) len(tuple) max(tuple) min(tuple) tuple(seq) .	Remember	CO3	CLO11	ACSB38.11
10	Write how to access dictionary.	To access dictionary elements, you can use the familiar square brackets along with the key to obtain its value.	Remember	CO3	CLO12	ACSB38.12
11	Write how to update dictionary?	You can update a dictionary by adding a new entry or a key-value pair, modifying an existing entry, or deleting an existing entry.	Understand	CO3	CLO11	ACSB38.11
12	Write how to delete a dictionary.	You can either remove individual dictionary elements or clear the entire contents of a dictionary. You can also delete entire dictionary in a single operation.	Understand	CO3	CLO12	ACSB38.12

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		To explicitly remove an entire dictionary, just use the **del** statement.				
13	Explain properties of dictionary.	There are two important points to remember about dictionary keys – **(a)** More than one entry per key not allowed. Which means no duplicate key is allowed. When duplicate keys encountered during assignment, the last assignment wins. **(b)** Keys must be immutable. Which means you can use strings, numbers or tuples as dictionary keys but something like ['key'] is not allowed.	Remember	CO3	CLO10	ACSB38.10
14	Write methods and discriptions of dictionary?	dict.clear() dict.copy() dict.fromkeys() dict.get(key, default=None) dict.has_key(key) dict.items() dict.keys() dict.setdefault(key, default=None) dict.update(dict2) dict.values()	Understand	CO3	CLO09	ACSB38.09
14	What is an array?	An array is a data structure that stores values of same datatype.	Understand	CO3	CLO10	ACSB38.10
16	Which module has to be imported to work with arrays in python?	To use arrays in python array module has to be imported.	Understand	CO3	CLO11	ACSB38.11
17	What method has to be used to add elements to the array?	Append() method.	Understand	CO3	CLO12	ACSB38.112

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
18	What method has to be used to remove last element of an array?	Pop() method	Understand	CO3	CLO11	ACSB38.11
19	What is difference between list and array?	List contains heterogeneous datatypes whereas array contains homogenious datatypes.	Understand	CO3	CLO12	ACSB38.12
20	What is the use of numpy?	Numpy stands for numerical python ,it is a library consisting of multi diamensional array objects.	Remember	CO3	CLO10	ACSB38.10
MODULE-IV						
1	Define string.	A string represents a group of characters. In python str data type represents a string.	Remember	CO4	CLO13	ACSB38.13
2	Write the syntax of creating a string.	We can create a string in python by assigning a group of characters to a variable. Syntax: Varname=”string name” Or Varname=’string name’	Remember	CO4	CLO14	ACSB38.14
3	List the escape characters that can be used in strings.	\a-Bell or Alert \b-Backspace \n-New line \t-Horizantal tab space \v-Vertical tab space \r-Enter button \x-Character x \\ Displays single \	Remember	CO4	CLO15	ACSB38.15
4	Define length of string and what is the predefined function used to find length of string.	Length of string represents the number of characters in a string. We can use len() function.	Remember	CO 4	CLO16	ACSB38.16
5	What is indexing in strings?	Index represents the position number. Index is written using square brackets [].	Remember	CO4	CLO14	ACSB38.14
6	Write the syntax of slicing the string.	A slice represents a part or piece of a string. The format of slicing is: String name [start: stop: step size]	Remember	CO4	CLO15	ACSB38.15

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
7	Which symbol is used to concatenate two strings?	We can use '+' symbol on strings to attach a string at the end of another string.	Remember	CO4	CLO16	ACSB38.16
8	How to remove spaces from a string?	A space is also considered as a character inside a string. A space can be removed using rstrip(), lstrip()and strip() methods.	Understand	CO4	CLO15	ACSB38.15
9	Which methods are used to find substrings in main string?	The find(),rfind(),index() and rindex() methods are useful to locate sub stings in a string.	Remember	CO4	CLO16	ACSB38.16
10	Name some string testing methods.	1.isalnum() 2.isalpha() 3.isdigit() 4.isupper()	Remember	CO4	CLO14	ACSB38.14
11	What is the use of count() method?	It is useful to count the number of occurrences of a sub string in a main string.	Understand	CO4	CLO13	ACSB38.13
12	Define a function.	Function contains a group of statements and performs a specific task.	Remember	CO4	CLO13	ACSB38.14
13	Write the syntax of defining a function.	We can define a function using the keyword def followed by function name. Syntax: def function name(parameter1,parameter2,……): """"function docstring"""" function statements.	Remember	CO4	CLO15	ACSB38.15
14	What is the process of calling a function?	While calling the function, we should pass the necessary values to the function in the parenthesis as Sum(10,15).	Understand	CO4	CLO15	ACSB38.15
15	How to return result from function?	We can return the result or output from the function using a 'return' statement in the body of the function. For example return c return 100.	Remember	CO4	CLO16	ACSB38.16

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
16	How to return multiple values from a function?	In python, a function can return multiple values and wants to return the results. We can use return statement as return a,b,c.	Understand	CO4	CLO13	ACSB38.13
17	Why functions in python are called as first class objects?	Python interpreter internally creates an object. We can use functions as first class objects.	Remember	CO4	CLO16	ACSB38.16
18	Define formal and actual arguments.	The parameters are useful to receive values from outside of the function are called formal arguments.	Remember	CO4	CLO15	ACSB38.15
19	Define positional arguments	These are the arguments passed to a function in correct positional order. Here, the number of arguments and their positions in the function definition should match exactly with the number and position of the argument in the function call.	Remember	CO4	CLO14	ACSB38.14
20	What is recursive function?	A function that calls itself is known as 'recursive function'.	Remember	CO4	CLO16	ACSB38.16
MODULE-V						
1	Define a class.	Class is a user defined data type. It is a set of attributes (variables) and methods (functions). It is created using the keyword 'class'.	Understand	CO 5	CLO 17	ACSB38.17
2	Define an object.	Object is a unique instance of a class. We can use the same class as blueprint for creating number of different objects. The class describes what the object will be.	Remember	CO 5	CLO 18	ACSB38.18
3	List out the features of object oriented programming.	• Encapsulation • Abstraction • Inheritance • Polymorphism	Understand	CO 5	CLO 19	ACSB38.19
4	Define Encapsulation.	Encapsulation refers to binding data and methods together inside a class. It keeps the data and methods safe from outside interference and misuse. Encapsulation prevents accessing data accidentally.	Remember	CO 5	CLO 20	ACSB38.20

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
5	Define Inheritance.	It refers to creating a child class such that the child class would inherit all the properties (variables and methods) of the parent class. The parent class is called super class while the child class is called subclass.	Understand	CO 5	CLO 20	ACSB38.20
6	Define Abstraction.	It refers to creating structure classes that are not implemented. Abstract classes are like a base class and many other classes inherit the properties of abstract class but the abstract class itself is not implemented.	Remember	CO 5	CLO 18	ACSB38.18
7	Define attributes and methods in a class.	A class by itself is of no use unless there is some functionality associated with it. Functionalities are defined by setting attributes, which act as containers for data and functions related to those attributes. Those functions are called methods.	Understand	CO 5	CLO 19	ACSB38.19
8	What is self parameter?	The self parameter is a reference to the current instance of the class, and is used to access a variable that belongs to the class.	Remember	CO 5	CLO 20	ACSB38.20
9	What is inheritance?	Inheritance allows us to define a class that inherits all the methods and properties from another class. **Parent class** is the class being inherited from, also called base class. **Child class** is the class that inherits from another class, also called derived class.	Understand	CO 5	CLO 20	ACSB38.20
10	What is class instantiation ?	Class instantiation uses function notation. Just pretend that the class object is a parameter less function that returns a new instance of the class	Understand	CO 5	CLO 19	ACSB38.19
11	What is constructor?	A constructor is a special kind of method that Python calls when it instantiates an object using the definitions found in a class. Python relies on the constructor to perform tasks such as initializing (assigning values to) any instance variables that the object will need when it starts.	Remember	CO 5	CLO 18	ACSB38.18
12	What is a class Variable?	A variable that is shared by all instances of a class. Class variables are defined within a class but outside any of the class's	Remember	CO 5	CLO 17	ACSB38.17

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		methods. Class variables are not used as frequently as instance variables are.				
13	What is a data member in the class?	A class variable or instance variable that holds data associated with a class and its objects.	Understand	CO 5	CLO18	ACSB38.18
14	What is instance variable?	A variable that is defined inside a method and belongs only to the current instance of a class.	Remember	CO 5	CLO19	ACSB38.19
15	What is instance of a class?	An individual object of a certain class.	Remember	CO 5	CLO17	ACSB38.17
16	What is multiple inheritance ?	Python allows us to derive a class from several classes at once, this is known as Multiple Inheritance.	Understand	CO 5	CLO18	ACSB38.18
17	What is Polymorphism?	In programming, polymorphism means same function name being uses for different types.	Remember	CO 5	CLO19	ACSB38.19
18	Define super() method.	At a fairly abstract level, super() provides the access to those methods of the super-class (parent class) which have been overridden in a sub-class (child class) that inherits from it.	Remember	CO 5	CLO820	ACSB38.20
19	List types of inheritance.	In Python, there are four types of Inheritance: 1. Multiple Inheritance 2. Multilevel Inheritance 3. Single Inheritance 4. Hierarchical Inheritance	Understand	CO 5	CLO17	ACSB38.17
20	What is multilevel inheritance?	In multilevel inheritance, inherit the classes at multiple separate levels.	Understand	CO 5	CLO18	ACSB38.18

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