INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

COMPUTER SCIENCE AND ENGINEERING

DEFINITIONS AND TERMINOLOGY QUESTION BANK

Course Name	:	**Object Oriented Programming Through Python**
Course Code	:	**AITB01**
Program	:	**B.Tech**
Semester	:	**III**
Branch	:	**CSE**
Section	:	**A | B | C | D**
Academic Year	:	**2019 - 2020**
Course Faculty	:	**Dr.R Obulakonda Reddy, Associate Professor,CSE** **Ms.M.Ashoka Deepthi, Assistant Professor,CSE** **Ms. B Tejaswi, Assistant Professor,CSE** **Mr. P Ravinder, Assistant Professor,CSE**

COURSE OBJECTIVES:

The course should **enable the students to:**	
I	Understand the fundamentals of Python programming concepts and its applications.
II	Understand the object-oriented concepts using Python in problem solving.
III	Apply string handling and function basics to solve real-time problems.
IV	Illustrate the method of solving errors using exception handling.
V	Design and implement programs using multi threading concepts.

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	AITB01.01
2	What is the role of Python Interactive shell?	Python provides an interactive shell, which is used in between the user and OS. One can work with the Python interpreter from an interactive shell. Python Commands are run using the	Remember	CO1	CLO1	AITB01.01

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		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	CLO1	AITB01.01
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	CLO1	AITB01.01
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	CLO1	AITB01.01
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	CLO3	AITB01.03
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	AITB01.01
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	CLO1	AITB01.01
9	How to declare strings in Python?	Strings are identified as group of characters represented in quotation marks. Python allows both a pair of single and double quotes for writing strings. Strings written in triple quotes can span multiple lines of text. Strings in Python are immutable data type i.e. each time a new string object is created when one makes any changes to a string.	Remember	CO1	CLO1	AITB01.01
10	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	CO1	CLO1	AITB01.01
11	Define a List?	A list contains items separated by commas and enclosed within square brackets. A list in Python	Remember	CO1	CLO1	AITB01.01

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		can contain heterogeneous data types.				
12	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.	Remember	CO1	CLO1	AITB01.01
13	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	CO1	CLO1	AITB01.01
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	CLO2	AITB01.02
15	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.	Remember	CO1	CLO2	AITB01.02
16	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	CO1	CLO2	AITB01.02
17	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	CO1	CLO2	AITB01.02
18	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	CO2	CLO3	AITB01.03

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
19	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.	Understand	CO2	CLO3	AITB01.03
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	CLO3	AITB01.03
21	Distinguish between class variables vs. instance variables.	Class variables are the values which are local to a class, where as instance variables or attributes are values which is assigned inside the constructor.	Understand	CO2	CLO4	AITB01.04
22	List out the features of object oriented programming.	• Encapsulation • Abstraction • Inheritance • Polymorphism	Remember	CO2	CLO3	AITB01.03
23	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.	Understand	CO2	CLO4	AITB01.04
24	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	CO2	CLO5	AITB01.05
25	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.	Understand	CO2	CLO5	AITB01.05

MODULE-II

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
1	What is a class?	A class is a code template for creating objects. Objects have member variables and have behavior associated with them. In python a class is created by the keyword class.	Remember	CO2	CLO6	AITB01.06
2	Define object.	An object is created using the constructor of the class. This object will then be called the instance of the class.	Remember	CO2	CLO6	AITB01.06
3	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	Understand	CO2	CLO6	AITB01.06

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		attributes. Those functions are called methods.				
4	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.	Understand	CO2	CLO6	AITB01.06
5	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	CO2	CLO8	AITB01.08
6	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	Remember	CO2	CLO6	AITB01.06
7	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	CO2	CLO6	AITB01.06
8	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	CLO7	AITB01.07
9	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 methods. Class variables are not used as frequently as instance variables are.	Remember	CO2	CLO6	AITB01.06
10	What is a data member in the class?	A class variable or instance variable that holds data associated with a class and its objects.	Remember	CO2	CLO6	AITB01.06
11	What is instance variable?	A variable that is defined inside a method and belongs only to the current instance of a class.	Remember	CO2	CLO6	AITB01.06
12	What is instance of a class?	An individual object of a certain class.	Remember	CO2	CLO6	AITB01.06
13	What is object?	A unique instance of a data structure that's defined by its class. An object comprises both data members (class variables and instance variables) and methods.	Remember	CO2	CLO6	AITB01.06

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
14	Define function overloading.	The assignment of more than one behavior to a particular function. The operation performed varies by the types of objects or arguments involved.	Remember	CO2	CLO8	AITB01.08
15	What is operator overloading?	The assignment of more than one function to a particular operator.	Remember	CO2	CLO8	AITB01.08
16	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 parentheses.	Remember	CO2	CLO7	AITB01.07
17	What are Python's dictionaries?	Python's dictionaries are kind of hash table type. They work like associative arrays or hashes found in Perl and consist of key-value pairs. A dictionary key can be almost any Python type, but are usually numbers or strings. Values, on the other hand, can be any arbitrary Python object.	Remember	CO2	CLO8	AITB01.08
18	What is namespace?	A namespace is a system to have a unique name for each and every object in Python.	Understand	CO2	CLO7	AITB01.07
19	List types of name space.	1. Local name space 2. Global name space 3. Built in name space	Understand	CO2	CLO7	AITB01.07
20	What is multiple inheritance ?	Python allows us to derive a class from several classes at once, this is known as Multiple Inheritance.	Remember	CO2	CLO8	AITB01.08
21	What is Polymorphism?	In programming, polymorphism means same function name being uses for different types.	Remember	CO2	CLO10	AITB01.10
22	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.	Understand	CO2	CLO9	AITB01.09
23	List types of inheritance.	In Python, there are four types of Inheritance: 1. Multiple Inheritance 2. Multilevel Inheritance 3. Single Inheritance 4. Hierarchical Inheritance	Remember	CO2	CLO8	AITB01.08
24	Define the method overriding.	Method overriding is a concept of object oriented programming that allows us to change the implementation of a function in the child class that is defined in the parent class.	Remember	CO2	CLO8	AITB01.08
25	What is multilevel inheritance?	In multilevel inheritance, inherit the classes at multiple separate levels.	Remember	CO2	CLO8	AITB01.08
MODULE-III						
1	Define string.	A string represents a group of	Understand	CO3	CLO11	AITB01.11

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		characters. In python str data type represents a string.				
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	CO3	CLO11	AITB01.11
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	CO3	CLO11	AITB01.11
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.	Understand	CO3	CLO11	AITB01.11
5	What is indexing in strings?	Index represents the position number. Index is written using square brackets [].	Understand	CO3	CLO11	AITB01.11
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	CO3	CLO11	AITB01.11
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	CO3	CLO11	AITB01.11
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.	Remember	CO3	CLO11	AITB01.11
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	CO3	CLO11	AITB01.11
10	Name some string testing methods.	1.isalnum() 2.isalpha() 3.isdigit() 4.isupper()	Remember	CO3	CLO12	AITB01.12
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	CO3	CLO12	AITB01.12
12	Define a function.	Function contains a group of statements and performs a specific task.	Understand	CO3	CLO12	AITB01.12
13	Write the syntax of defining a	We can define a function using the keyword def followed by	Remember	CO3	CLO12	AITB01.12

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
	function.	function name. Syntax: def function name(parameter1,parameter2,……): """function docstring""" function statements.				
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	CO3	CLO13	AITB01.13
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.	Understand	CO3	CLO13	AITB01.13
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	CO3	CLO13	AITB01.13
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.	Understand	CO3	CLO14	AITB01.14
18	Define formal and actual arguments.	The parameters are useful to receive values from outside of the function are called formal arguments. When we call the function, we should pass data or values to the function. These values are called actual arguments.	Understand	CO3	CLO14	AITB01.14
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.	Understand	CO3	CLO15	AITB01.15
20	What is recursive function?	A function that calls itself is known as 'recursive function'.	Remember	CO3	CLO15	AITB01.15
21	What is the output when following statement is executed? >>>"a"+"bc"	Output: abc + Operator is concatenation operator.	Understand	CO3	CLO11	AITB01.11
22	What are the advantages of functions?	1. Functions are used to process data. 2. Function can be reused as and when required.	Understand	CO3	CLO12	AITB01.12

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		3. Functions provide modularity for programming. 4. Code maintenance becomes easy.				
23	Write one example of defining a function	def sum(a,b): """" This function finds sum of two numbers""""" c=a+b print(c)	Remember	CO3	CLO12	AITB01.12
24	How can we change case of a string?	Python uses four methods to change the case of a string. They are upper(),lower(), swapcase(),title().	Understand	CO3	CLO11	AITB01.11
25	What are the types of arguments used in a function call?	1.Positional arguments 2.Keyword arguments 3.Default arguments 4.Variable length arguments	Understand	CO3	CLO14	AITB01.14
MODULE-IV						
1	What is an Exception?	An exception is an error that happens during execution of a program. When that error occurs, Python generate an exception that can be handled, which avoids your program to crash.	Remember	CO4	CLO15	AITB01.15
2	Why use Exceptions?	Exceptions are convenient in many ways for handling errors and special conditions in a program. When you think that you have a code which can produce an error then you can use exception handling.	Remember	CO4	CLO15	AITB01.15
3	What is an Raising an Exception	You can raise an exception in your own program by using the raise exception statement. Raising an exception breaks current code execution and returns the exception back until it is handled.	Remember	CO4	CLO16	AITB01.16
4	Define try block?	If an error is encountered, a try block code execution is stopped and transferred down to the except block. In addition to using an except block after the try block, you can also use the finally block. The code in the finally block will be executed regardless of whether an exception occurs.	Remember	CO 4	CLO16	AITB01.16
5	What is except clause	An exception is an error that happens during execution of a program. When that error occurs, Python generate an exception that can be handled, which avoids your program to crash.	Remember	CO4	CLO17	AITB01.17

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
6	Define finally clause?	A finally clause is always executed before leaving the try statement, whether an exception has occurred or not.	Remember	CO4	CLO17	AITB01.17
7	Define Try ... finally clause?	The try statement in Python can have an optional **finally** clause. This clause is executed no matter what, and is generally used to release external resources.	Remember	CO4	CLO17	AITB01.17
8	What are exceptions in Python?	Python has many built-in exceptions which forces your program to output an error when something in it goes wrong. When these exceptions occur, it causes the current process to stop and passes it to the calling process until it is handled. If not handled, our program will crash.	Understand	CO4	CLO17	AITB01.17
9	Define user-define exception.	If user creates a exception by creating exception class called as user-define exception.	Remember	CO4	CLO17	AITB01.17
10	What is custom Exception?	If user creates a exception by creating exception class called as user-define exception.	Remember	CO4	CLO17	AITB01.17
11	What is the meaning of the built-in exception?	Exception which are already defined by python.	Understand	CO4	CLO17	AITB01.17
12	Defining Raising an exception in Python.	In Python programming, exceptions are raised when corresponding errors occur at run time, but we can forcefully raise it using the keyword raise.	Remember	CO4	CLO17	AITB01.17
13	How many except statements can a try-except block have?	More than zero.	Remember	CO4	CLO18	AITB01.18
14	When will the else part of try-except-else be executed?	When no exception occurs.	Understand	CO4	CLO18	AITB01.18
15	Is the following code valid? **try**: # Do something	No, finally cannot be used with except.	Remember	CO4	CLO18	AITB01.18

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
	except: # Do something **finally**: # Do something					
16	When will the else part of try-except-else be executed?	When no exception occurs.	Understand	CO4	CLO18	AITB01.18
17	Is the following code valid? **try**: # Do something **except**: # Do something **finally**: # Do something	No, finally cannot be used with except.	Remember	CO4	CLO18	AITB01.18
18	Is the following code valid? **try**: # Do something **except**: # Do something **else**: # Do something	Yes.	Remember	CO4	CLO18	AITB01.18
19	Can one block of except statements handle multiple exceptions?	Yes, like except TypeError, SyntaxError [,…]. Explanation: Each type of exception can be specified directly. There is no need to put it in a list.	Remember	CO4	CLO18	AITB01.18
20	When is the finally block executed?	Always.	Remember	CO4	CLO18	AITB01.18

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
MODULE-V

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
1	Define Root window?	The **root window** is the root of this hierarchy. It is as large as the screen, and all other windows are either children or descendants of it.	Understand	CO 5	CLO 21	AITB01.21
2	What is Fonts and colors?	Font color is how you insert colorized text,such as red, orange, green,blue and indigo, and many others. You can specify its background color at the same time.	Remember	CO 5	CLO 21	AITB01.21
3	Define containers?	A container is a software package that contains everything the software needs to run. This includes the executable program as well as system tools, libraries, and settings. Containers are not installed like traditional software programs, which allow them to be isolated from the other software and the operating system itself.	Understand	CO 5	CLO 22	AITB01.22
4	Define canvas?	The canvas widget is used to add the structured graphics to the python application. It is used to draw the graph and plots to the python application.	Remember	CO 5	CLO 22	AITB01.22
5	What is frame?	The Frame widget is very important for the process of grouping and organizing other widgets in a somehow friendly way. It works like a container, which is responsible for arranging the position of other widgets.	Understand	CO 5	CLO 22	AITB01.22
6	Define widgets?	Widgets are standard graphical user interface (GUI) elements, like different kinds of buttons and menus.	Remember	CO 5	CLO 23	AITB01.23
7	What is Button Widget?	The Button widget is a standard Tkinter widget, which is used for various kinds of buttons. A button is a widget which is designed for the user to interact with, i.e. if the button is pressed by mouse click some action might be started. They can also contain text and images like labels. While labels can display text in various fonts, a button can only display text in a single font. The text of a button can span more than one line.	Understand	CO 5	CLO 23	AITB01.23

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
8	What is Label Widget?	A Label is a Tkinter Widget class, which is used to display text or an image. The label is a widget that the users just views but not interact with.	Remember	CO 5	CLO 23	AITB01.23
9	Define message widget?	The widget can be used to display short text messages. The message widget is similar in its functionality to the Label widget, but it is more flexible in displaying text, e.g. the font can be changed while the Label widget can only display text in a single font. It provides a multiline object, that is the text may span more than one line. The text is automatically broken into lines and justified	Understand	CO 5	CLO 24	AITB01.24
10	What is text widget?	A text widget is used for multi-line text area. The tkinter text widget is very powerful and flexible and can be used for a wide range of tasks. Though one of the main purposes is to provide simple multi-line areas, as they are often used in forms, text widgets can also be used as simple text editors or even web browsers.	Understand	CO 5	CLO 24	AITB01.24
11	Define radio button?	A radio button, sometimes called option button, is a graphical user interface element of Tkinter, which allows the user to choose (exactly) one of a predefined set of options. Radio buttons can contain text or images. The button can only display text in a single font. A Python function or method can be associated with a radio button. This function or method will be called, if you press this radio button.	Remember	CO 5	CLO 25	AITB01.25
12	What is Entry widget?	The Entry widget is a standard Tkinter widget used to enter or display a single line of text.	Remember	CO 5	CLO 25	AITB01.25

Signature of the Faculty

HOD, IT