COMMON QUARTERLY EXAMINATION 2024 CUDDALORE - DT

STANDARD -XII

COMPUTER SCIENCE

TIME:3.00HRS

MARKS:70 15X1=15

I ANSWER ALL THE QUESTIONS

Q.NO	OPTION	ANSWER	Q.NO	OPTION	ANSWER
1.	d.	Parameters	9.	a.	Lambda
2.	C.	Tuple	10.	a.	+
3.	a.	Public members	11.	d.	Either (a) or (b)
4.	d.	Half – interval Search	12.	b.	[17,23,41,10,32]
5.	b.	Guido Van Rossum	13.	d.	{1,3,6,9}
6.	a.	Interpreter	14.	C.	Methods
7.	a.	3	15.	d.	init()
8.	b.	:		VU	

PART -II

II Answer any six questions.(Question No.24 is compulsory)

6x2=12

16.	Interface	Implementation	
	Interface just defines what anobject can do, but won't actually do it	Implementation carries out the instructions defined in the interface	2
17.	A tuple is a comma-separated sequence of values surrounded with parentheses. <u>Example:</u> Color= ('red', 'blue', 'Green')		1 1
18.	The process of binding a variable name with a	n object is called mapping.	2
19.	 Sorting is a process of arranging group or order. Bubble Sort, Quick Sort, Heap So various sorting algorithms. 	of items in an ascending or descending rt, Merge Sort, Selection Sort are the	2
20.	 Literal is a raw data given in a variable or constant. In Python, there are various types of literals. They are, Numeric Literals consists of digits String literal is a sequence of characters surrounded by quotes. Boolean literal can have any of the two values: True or False. 		2
21.	 The break statement terminates the Control of the program flows to the s the loop. 	loop containing it. statement immediately after the body of	2
22.	 Functions are named blocks of code that Function blocks begin with the keyword " parenthesis (). 	are designed to do one specific job. (or) 'def " followed by function name and	2
23.	A substring can be taken from the original strin subscript values.	g by using [] slicing operator and index or	2
	osing since operator, you have to since one of m		

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24.	6
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PART -II

II Answer any six questions.(Question No.33 is compulsory)

6x3=18

25.	 The class template specifies the interfaces to enable an object to be created and operated properly. An object's attributes and behaviour is controlled by sending functions to the object. 		
26.	Concrete data types	Abstract Data Types	
	 Concrete data types or structures (CDT's) are direct implementations of a relatively simpleconcept. A concrete data type is a data type 	 Abstract Data Types (ADT's) offer a high level view (and use) of a concept independent of itsimplementation. Abstract data type the representation of a 	3
	• A concrete data type is a data type whose representation is known.	• Abstract data type the representation of a data type is unknown.	
27.	1.Input2. Output3. Finiteness4.Definiteness5. Effectiveness6.Correctnes7. Simplicity8.Unambiguous9. Feasibility10.Portable11.Independent		3
28.	• . Ternary operator is also known as conditional operator that evaluates something based on a conditionbeing true or false.		2
	else making the codecompact. <u>Syntax:</u> Variable Name = [on_true] if [Te Example : min = 50 if 49<50 else 70 # C	st expression] else [on_false] Dutput: min = 50	1
29.	Svntax:		
	while <condition>: statement block1 [else: Statement block2]</condition>	20-	3
30.	 Functions that calls itself is known as rec 	ursive.	
	• When a function calls itself is known as r	ecursion.	
	 Recursion works like loop but sometimes loop. 	s it makes more sense to use recursion than	
	 Imagine a process would iterate indefinit known as infinite iteration. 	tely if not stopped by some condition is	3
	 The condition that is applied in any recur A base condition is must in every recur execute like an infinite loop 	rsive function is known as base condition. sive function otherwise it will continue to	
	 Python stops calling recursive function a So, It also allows you to change the lim 	fter certain limit by default. it using sys.setrecursionlimit (limit_value).	
31.	Count:		
	Returns the number of substrings occur	s within the given range.	2
	 Remember that substring may be a sing 	le character.	
	 Range (beg and end) arguments are opt whole string. 	ional. If it is not given, python searched in	
	 Search is case sensitive. 		
	SYNTAX: count(str, beg, end)		
	Explain with Example		1

2

32	 Variables defined inside a class are called as "Class Variable" and functions are called as "Methods". 	
	 Class variable and methods are together known as members of the class. 	
	 The class members should be accessed through objects or instance of class. 	2
	 A class can be defined anywhere in a Python program. 	2
	CLASS DEFINITION:	
	class Sample:	1
	x, y = 10, 20#class variables	1
	S=Sample()# class instantiation	
	print("Value of x = ", S.x)	
	print("Value of y = ", S.y)	
33.	[1,4,9,16,25,36,49,64,81]	3
	PART -III	
III A	nswer all questions 52	x5=25
240		
34a.	➢ <u>Interface</u>	4
	An interface is a set of action that an object can do.	
	Interface just defines what an object can do, but won't actually do it.	
	 The interface defines an object's visibility to the outside world. 	
	• For example when you press a light switch, the light goes on, you may not have	
	cared how it splashed thelight	
	Characteristics of interface:	
	 The class template specifies the interfaces to enable an object to be created and operated properly. 	
	 An object's attributes and behaviour is controlled by sending functions to the object. 	
	> Implementation:	
	 Implementation carries out the instructions defined in the interface 	
	 How the object is processed and executed is the implementation. 	
	• A class declaration combines the external interface (its local state) with an	
	implementation of that interface.	
	Explain with example	1
	OR	
34b.	List is constructed by placing expressions within square brackets separated by commas.	
	 an expression is called a list literal. 	
	 List can store multiple values. 	
	• Each value can be of any type and can even be another list.	
	 The elements of a list can be accessed in two ways. 	
	1. Multiple Assignment:	
	M/bich uppacks a list into its alamants and hinds each alamant to a	

 Which unpacks a list into its elements and binds each element to a different name.

Example:

lst := [10, 20]

x, y := lst

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 x will become 10 and y will become 20. <u>Element Selection Operator:</u> It is expressed using square brackets. Unlike a list literal, a square-brackets expression directly following 		
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Unlike a list literal, a square-brackets expression directly following		
Unlike a list literal, a square-brackets expression directly following		
another expression does not evaluate to a list value, but instead		
selects an element from the value of the preceding expression. PAIRS:		
 Python provides a compound structure called Pair which is made up of list or 		
Tuple.		
Example: $Ist:=[(0,10),(1,20)]$		
(0, 10) (1, 20)		
Index position value Index position value		
35a The following are the desirable characteristics of a module		
1 Modulos contain instructions, processing logic, and data		
1. Modules contain instructions, processing logic, and data.		
2. Modules can be separately complied and stored in a library.		
3. Modules can be included in a program.		
4. Module segments can be used by invoking a name and some parameters.		
5. Module segments can be used by other modules.		
OR		
• Bubble sort is a simple sorting algorithm, it starts at the beginning of the		
list of values stored in anarray.		
 It compares each pair of adjacent elements and swaps them if they are in the 		
 Inis comparison and passed to be continued until no swaps are needed, 		
which shows the values in anarray is sorted.		
 It is named so because, the smaller elements "bubble" to the top of the list. 		
 It is too slow and less efficient when compared to other sorting methods. 		
Pseudo code		
 Start with the first element i.e., index = 0, compare the current element with the next element of the array. 		
2. If the current element is greater than the next element of the array, swap them.		
3. If the current element is less than the next or right side of the element, move to		
the next element.		
4. Go to Step 1 and repeat until end of the index is reached.		
Explain with example		
 ^{36a.} • Python breaks each logical line into a sequence of elementary lexical components 		
known as Tokens .		
 The normal taken types are 		
• The normal token types are,		
• The normal token types are, 1) Identifiers,		
 The normal token types are, 1) Identifiers, 2) Keywords, 		
 The normal token types are, 1) Identifiers, 2) Keywords, 3) Operators, 		
 The normal token types are, 1) Identifiers, 2) Keywords, 3) Operators, 4) Delimiters and 		
 The normal token types are, 1) Identifiers, 2) Keywords, 3) Operators, 4) Delimiters and 5) Literals. 		

	OR
36b.	• When we need to construct a chain of if statement(s) then 'elif' clause can be used instead of 'else' .
	• 'elif' clause combines ifelse-ifelse statements to one ifelifelse.
	• 'elif' can be considered to be abbreviation of 'else if'.
	• In an 'if' statement there is no limit of 'elif' clause that can be used, but an
	'else' clause if used should beplaced at the end.
	• In the syntax of if.elif.else mentioned above, condition-1 is tested if it is
	true then statements-block1 isexecuted.
	• Otherwise the control checks condition-2, if it is true statements-block2 is
	executed and even if it failsstatements-block n mentioned in else part is
	executed.
	Explain with example
37a.	 Eunctions are named blocks of code that are designed to do one specific job
	 Types of Functions
	User defined Function
	Built-in Eurotion
	Lambda Eunction
	Basursian Eulection
	i) RIII T-IN FUNCTION.
	Built-in functions are Eulertions that are inbuilt with in Python
	 print() echo() are some built-in function
	ii) USER DEFINED FUNCTION:
	 Eunctions defined by the users themselves are called user defined function.
	• Functions must be defined, to create and use certain functionality.
	 Function blocks begin with the keyword "def" followed by function name and
	parenthesis ().
	iii) LAMBDA FUNCTION:
	• In Python, anonymous function is a function that is defined without a name.
	 While normal functions are defined using the def keyword, in Python
	anonymous functions are definedusing the lambda keyword.
	Hence, anonymous functions are also called as lambda functions.
	USE OF LAMBDA OR ANONYMOUS FUNCTION:
	Lambda function is mostly used for creating small and one-time anonymous
	tunction.
	<u>IV) RECURSIVE FUNCTION:</u> Functions that calls itself is known as recursive
	Overview of how recursive function works
	1 Recursive function is called by some external code
	2 If the base condition is met then the program gives meaningful output and
	exits.
	3. Otherwise, function does some required processing and then calls itself to
	continue recursion.
	Explain with example
	OR

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37b.	STRING OPERATORS	4	
	Python provides the following string operators to manipulate string.		
	<u>1.Concatenation (+)</u>		
	• Joining of two or more strings using plus (+) operator is called as Concatenation.		
	<u>2.Append (+ =)</u>		
	 Adding more strings at the end of an existing string using 		
	operator += is known as append.		
	<u>3.Repeating (*)</u>		
	 The multiplication operator (*) is used to display a string in multiple number of times. 		
	Explain with example	1	
38a.	A Set is a mutable and an unordered collection of elements without duplicates.		
	Set Operations:		
	The set operations such as Union, Intersection, difference and Symmetric		
	difference.		
	(i) Union:		
	 It includes all elements from two or more sets. 	4	
	The operator is used to union of two sets.		
	The function union() is also used to join two sets in python.		
	(ii) Intersection:		
	 It includes the common elements in two sets. 		
	 The operator & is used to intersect two sets in python. 		
	The function intersection() is also used to intersect two sets in python.		
	(iii) Difference:		
	 It includes all elements that are in first set (say set A) but not in the second set (say set B). 		
	• The m inus (-) operator is used to difference set operation in python.		
	• The function difference() is also used to difference operation.		
	(iv) Symmetric difference		
	It includes all the elements that are in two sets (say sets A and B) but not the		
	one that are common to twosets.		
	The caret (^) operator is used to symmetric difference set operation in python.		
	The function symmetric_difference() is also used to do the same operation.		
	Explain with example	1	
	OR		
38b.	1. <u>Constructor:</u>		
	Constructor is the special function called "init" which act as a Constructor.		
	This function will executes automatically when the object is created.		
	It must begin and end with double underscore.	4	
	It can be defined with or without arguments.		
	General format:		
	definit(self, [args]):		
	<statements></statements>		
	Destructor:		
	 Destructor is also a special method gets executed automatically when an 		

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object exit from the scope.	
del_() method is used as destructor.	
<u>General format:</u>	
defdel_(self):	
<statements></statements>	
Explain with example	1