Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering / Science
End Sem Examination May-2024
CA5EL54 Programming in Python

Programme: MCA / BCA-MCA (Integrated) Branch/Specialisation: Computer Application

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Q.1 i. Which of the following is not a valid variable name in Python? **1**

(a) var (b) var_name (c) var11 (d) 5var

ii. Suppose the following statements are executed: **1**

a = 100
b = 200

What is the value of expression a and b?

(a) True (b) False (c) 200 (d) 100

iii. What will be the output of below Python code? **1**

```
tupl=("annie","hena","sid")
print(tupl[-3:0])
```

(a) (“annie”) (b) ()
(c) (“einna”) (d) None of these

iv. Which command is used to add an element in List named L1? **1**

(a) L1.add(4) (b) L1.append(4)
(c) L1.new(4) (d) None of these

v. A variable that is defined inside a method and belongs only to the current instance of a class is known as- **1**

(a) Inheritance (b) Instance variable
(c) Function overloading (d) Instantiation

vi. Parent class is the class being inherited from, also called- **1**

(a) Derived class (b) Child class
(c) Hybrid class (d) Base class

vii. Which of the following will give error? **1**
Suppose dict1={"a":1,"b":2,"c":3}
(a) print(len(dict1)) (b) print(dict1.get("b"))
(c) dict1["a"]=5 (d) None of these

viii. Which block lets you test a block of code for errors? **1**
(a) try (b) except (c) finally (d) None of these

ix. Symbol used to check if a string starts with a certain character: **1**
(a) Dot(.) (b) Caret(^) (c) Dollar($) (d) None of these

x. It matches if the specified characters are at the beginning or end of a word: **1**
(a) \a (b) \A (c) \b (d) \B

Q.2 i. How can you give multiple references to a single object? **2**

ii. What is the use of the following function? Give one example of each. **3**
(a) bin() (b) oct()
(c) hex()

iii. What is the use of Slicing operator in string? Explain with examples the different functions used in String. How can we typecast string? **5**

OR iv. What are the different types of Bitwise Operators used in Python? Consider x=11 and y=13 for examples. **5**

Q.3 i. How positional arguments can be used in Python? Write syntax and example. **2**

ii. Explain all the functions of tuples in Python with examples. What is the use of Tuple packing and unpacking? **8**

OR iii. Explain the different ways of adding new data to existing List. Give examples. **8**

Q.4 i. What is the purpose of using "self" parameter? Explain with Python code and output. **3**

ii. What is Inheritance? Write the Python code to illustrate Multiple inheritance. What are the different ways to check inheritance? **7**

OR iii. Describe the different ways of accessing static variables. Write python code with output. **7**

Q.5 i. What is the difference between pop() and popitem() function in dictionary? **4**

ii. Explain the use of seek() and tell() method in files with Python code. **6**

OR iii. Explain any six functions used in Python math module with examples. **6**

Q.6 Attempt any two:

i. Discuss the difference between yield and return statement. **5**

ii. Explain the following terms: **5**
(a) Regular expression (b) Closures property

iii. Explain the working of Iterator. **5**

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Scheme of Marking

CA5EL54-Programming in Python

Q.1	i)	d	**1**
	ii)	c	**1**
	iii)	b	**1**
	iv)	b	**1**
	v)	b	**1**
	vi)	d	**1**
	vii)	d	**1**
	viii)	a	**1**
	ix)	b	**1**
	x)	c	**1**

Q.2	i.	>>> n=300
		>>> print(n)
		300
		>>> type(n) # int object
		<class 'int'>
		>>> m=n
		Another example:
		x, y = 2, 3
		x, y = y, x
		print ('x =', x)
		print ('y =', y)
		will print
		x = 3
		y = 2
			2

	ii.	Bin():- convert any base to binary. 0b oct():- convert any base to octal. 0o Bin():- convert any base to hexadecimal 0X	**3**
	iii.	Slicing Operator:- Forward and Backward Indexing Functions:- upper(), lower(0, title() Typecast:- str(10)□ '10'	**5**
OR	iv.		**5**

Operator	**Description**
& Bitwise AND	Operator copies bit if it exists in both operand.
| Bitwise OR	Operator copies bit if it exists in either operand.
^ Bitwise XOR	Operator copies bitif it exists only in one operand.
~ Bitwise inverse	Unary operator, Operand is used to opposite the bits of operand
<< Left Shift	Shift the bits towards left
>> Right shift	Shift the bits towards right

Q.3	i.	```
		# Example of Positional Argument
		def sub(a,b):
		print(a-b)
		sub(100,200)
		sub(200, 100)
		``
		-100
		100
			2

	ii.	Len(), count(), index(), sorted(), min() max(), cmp() for five functions 5 marks Tuple packing & unpacking 3 marks Tuple packing:- a=10 b=20 c=30 d=40 t=a,b,c,d print(t) #(10, 20, 30, 40) Tuple unpacking:- t=(10,20,30,40) a,b,c,d=t print("a=", a, "b=", b, "c=",c, "d=",d) # Output: a= 10 b= 20 c= 30 d= 40	**8**
OR	iii.	append(), 2.5 marks insert(), 2.5 marks extend() 3 marks	**8**
Q.4	i.	Definition 1 marks Program 2 marks Self should be first parameter inside constructor	**3**

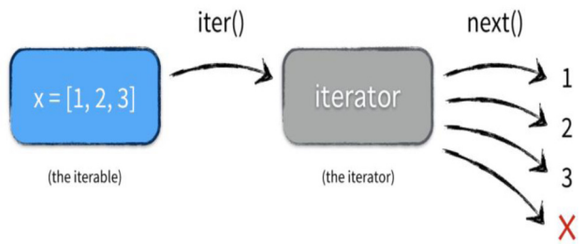
		def__init__(self): self should be first parameter inside instance methods Example:deftalk(self):	
	ii.	For checking:- isinstance(), issubclass()	**7**

OR	iii.	
		``python
		# Different ways to access static variable
		class Test:
		a=10
		def __init__(self): #Inside constructor
		print("Constr ",self.a, end =" ") #Using self
		print(Test.a) #Using classname
		def m1(self): #Inside instance method
		print("Instance method m1 ",self.a, end =" ") #Using self
		print(Test.a) #Using classname
		@classmethod
		def m2(cls): #Inside classmethod
		print("Class method ",cls.a, end =" ") # Using cls
		print(Test.a) # Using classname
		@staticmethod
		def m3(): #Inside staticmethod
		print("Static Method ",Test.a, end =" ") # Using classname
		
		t=Test()
		print("Outside class ",Test.a, end=" ")
		print(t.a)
		t.m1()
		t.m2()
		t.m3()
		``
		``
		Constr 10 10
		Outside class 10 10
		Instance method m1 10 10
		Class method 10 10
		Static Method 10
		``
		Program 5 marks
		Output 2 marks
			7

Q.5	i.	d.pop(key) It removes the entry associated with the specified key and returns the corresponding value 2 marks dict.popitem()Thepopitem()methodremovesandreturnsthe(key,value)pairfromthedictionaryintheLastIn,FirstOut(LIFO)order. 2 marks	**4**
	ii.	tell() method: return current position of the cursor(file pointer) from beginning of the file. 3 marks The position(index) of first character in files is zero just like string index. seek() method to move cursor(file pointer) to specified location.Syntax: f.seek(offset, fromwhere) offset represents the number of position 3 marks	**6**
OR	iii.	**Function** | **Description** ceil(x) | Returns the smallest integer greater than or equal to x.	**6**

		fabs(x) — Returns the absolute value of x factorial(x) — Returns the factorial of x floor(x) — Returns the largest integer less than or equal to x fmod(x, y) — Returns the remainder when x is divided by y fsum(iterable) — Returns an accurate floating point sum of values in the iterable(tuples, arrays, lists, etc.). exp(x) — Returns e**x trunc(x) — Returns the truncated integer value of x isinf(x) — Returns True if x is a positive or negative infinity log(x[, b]) — Returns the logarithm of xto the base b(defaults to e) isfinite(x) — Returns True if x is neither an infinity nor a NaN (Not a Number) isinf(x) — Returns True if x is a positive or negative infinity pow() — Returns the value of x to the power of y prod() — Returns the product of all the elements in an iterable sqrt() — Returns the square root of a number	
Q.6			
	i.	Return:- terminates a function entirely 2.5 marks Yield:-pauses the function saving all its states and later continues. 2.5 marks	**5**
	ii.	\d - Matches any decimal digit. Equivalent to [0-9] Expression: \d String: 12abc3 — Matched?: 3 matches (at 12abc3) String: Python — Matched?: No match \D - Matches any non-decimal digit. Equivalent to [^0-9] Expression: \D String: 1ab34"50 — Matched?: 3 matches (at 1ab34"50) String: 1345 — Matched?: No match	**5**

[2] [3]

	iii.	 iter() next() x = [1, 2, 3] iterator 1 2 3 X (the iterable) (the iterator)	**5**

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