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PES UNIVERSITY

UE17CS101

End Semester Assessment (ESA) B. Tech. 1st SEMESTER – Aug - Dec-2017
UE17CS101 - Introduction to Computing Using Python

Time: 3 Hrs. | Answer All Questions | Max Marks: 100

1	a	Indicate the output or reason for error if any. print("text) print("25" / "5") a = 10; b = 0; print(str(a) * b) a = 10; b = 10; print(a === b) a = 10; print(++a)	5
	b	Find the output in each case. x = 100; y = x; y = 200; print(x) x = [100, 200]; y = x; y = [300, 400]; print(x) x = [100, 200]; y = x; y.extend([300, 400]); print(x) x = [100, [200]]; y = x; y[0] = [300, 400]; print(x) x = [100, 200]; y = x; y += [300, 400]; print(x)	5
	c	Evaluate these expressions. 5 == 5 == 5 (2 + 3, 3 + 2) * 2 2 * "25" True and True or not True 5 in range(5)	5
	d	Find the type of the following expressions if the expression is valid. Otherwise indicate the error. (-25) ** 0.5 "pes"[1] {"x" : 25, 25 : "y"}[25] == 'x' {} set({})	5

2	a	n = int(input("enter a number:"))
		s = 0
		while n :
		  if n % 2 :
		  s += 1
		  n >>= 1
		print(s)
		Find the output for the following inputs
		i) 25
		ii) 15
		What does the program do?
			5

	b	Write a program to find the biggest number in the geometric progression with start value a and common ratio r less than a given number n. Inputs are a, r and n. Hint: geometric progression has the terms a, ar, ar^2 ar^3 ..	5

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	c	n = int(input("enter a number:"))
		i = 2
		while n > 1 :
		  while n % i == 0 :
		  print(i, end = " ")
		  n //= i
		  i += 1
		print()
		
		Find the output for the following inputs.
		i) 54
		ii) 24
		What does the program do?
			5

	d	Write a program to generate the following pattern for a given value of n. If n = 4, then the expected output is: 4 4 4 4 4 3 3 3 4 3 2 2 4 3 2 1	5

3	a	Find the output.
		a = []
		for i in range(4):
		  a.append([])
		  for j in range(i + 1):
		  a[i].append(j * j)
		print(a)
			4

	b	Write a program segment to achieve the following.
		Create a dictionary of lists given two lists.
		Input:
		a = ['karnataka', 'tamilnad', 'karnataka', 'karnataka', 'tamilnad', 'kerala']
		b = ['mysore', 'chennai', 'hassan', 'shimoga', 'madurai', 'trivandrum']
		output:
		d = {
		  'karnataka' : ['mysore', 'hassan', 'shimoga'],
		  'tamilnad' : ['chennai', 'madurai'],
		  'kerala' : ['trivandrum']
		}
			5

	c	Find the resultant set. Display the elements. i) set("1234") ii) set(("1234")) iii) set(("12", "34")) iv) set(set("1234")) v) set("12" + "34")	5
	d	Write a program to decode ['m', 'i', 's', (2, 1), (1, 1), (2, 3), 'p', (8, 1), (1, 1)] as mississippi. If it is a character, that itself is the decoded form. If it is a tuple, in the decoded string so far, the first is the position and the second is the length of the string.	6

		ex: decoded string : empty m => m i => mi s => mis (2, 1) => miss # char in position 2 which is s repeated once (1, 1) => missi (2, 3) => mississi # string in position 2 of length 3 from the previous decoded string : ssi	
4	a	Write a function that accepts a comma separated sequence of words as argument and returns a string which contains the words in a comma-separated sequence after sorting the words alphabetically. def foo(s): pass # TODO For Ex: foo("hi,how,are,you?") should return "are,hi,how,you?"	4
	b	def foo(x, y) : z = 0 for i in x : for j in y : z += 1 return z What happens in the following calls? print(foo((1, 2, 3), (4, 5))) print(foo({ 10 : "ten", 20 : "twenty" }, { 30 : "thirty" }))	4
	c	Given two lists of integers a and b, write single liners to achieve the following. i) Check whether the sum of the elements of a is greater than the sum of the elements of b. Evaluate to True if this condition is True otherwise False. ii) Generate a list of integers complementing each element in the given list with respect to 100. if the element in a is 25, the corresponding element in the resultant list should be 75. iii) Generate the product of all elements of the list a	6

	d	Indicate no output or actual output for each of the statements following the class definition.
		class A:
		def __init__(self):
		print("ctor")
		def __del__(self):
		print("dtor")
		x = A()
		y = x
		z = A()
		del x
		y = 111
		x = 222
			6

5	a	i) Use list comprehension to walk through a list of points - each point expressed as a pair of co-ordinates and find all the points in the first quadrant excluding those on the axes. ii) Find the output when test.py is executed as python test.py. File: abc.py print('three : ', __name__)	3 3

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		File: test.py print('one') import abc print('two : ', __name__)	
	b	What is the output with and without the statements marked X? def foo() : try: print("ondu") print(gottilla) print("eradu") except NameError: #X print("mooru") #X except KeyError: print("nalku") print("idu") print("three") foo() print("aaru")	4
	c	If f1 and f2 are file objects opened for reading, what would the following expression give? set(f1) and set(f2)	3

	d	i) Find the output.
		class A:
		def __iter__(self):
		self.x = 0
		return self
		def __next__(self):
		self.x += 11
		return self.x
		a = A()
		x = iter(a)
		y = iter(a)
		print(next(x))
		print(next(y))
		print(next(x))
		
		ii) Find the output.
		def gen():
		while True:
		yield True
		yield False
		g = gen()
		for i in range(4):
		print(next(g))
			3 + 4