PES University, Bengaluru
(Established under Karnataka Act No. 16 of 2013)

UE15CS101

DECEMBER 2015: END SEMESTER ASSESSMENT B. TECH. I SEMESTER

UE15CS101 - Introduction to Computing using Python

Time: 180 Mins	Answer All Questions	Max Marks: 100

1	a	Convert the following to base 10. Show all the steps.
		  i. $(AA)_{12}$
		  ii. $(HA)_{23}$
			4

	b	What is in common within each of the following groups of binary numbers?
		  i. values that end with a "0" digit (e.g., 1100).
		  ii. values that end with a "1" digit (e.g., 1100).
		  iii. values with a leftmost digit of "1," followed by all "0s" (e.g., 1000).
		  iv. (d) values consisting only of all "1" digits (e.g., 1111).
			4

	c	Write a Python program that allows the user to enter any integer base and integer exponent, and displays the value of the base raised to that exponent. Your program should function as shown below as an example. What base? 10 What power of 10? 4 10 to the power of 4 is 10000	**4**
	d	What is the difference between a compiler and interpreter? Is python program compiled or interpreted or both?	**8**
2	a	Write a python Program to interchange the values of variables of a & b without using the third variable. Your program should function as shown below as an example. a=50 b=500 Before Interchange a= 50 b= 500 After Interchange a= 500 b= 50	**4**

	b	Evaluate the following expressions in Python
		  i. print("Hello")+"PES"
		  ii. 10+20**2/(10**2)+12+3**3*10
			4

	c	Give a logically equivalent expression for each of the following.
		  i. num != 25 or num == 0
		  ii. 1 <= num and num <= 50
		  iii. not num > 100 and not num < 0
		  iv. (num < 0 or num > 100)
			4

	d	Give an appropriate if statement for each of the following.
		  i. An if statement that displays 'PESU' if X is between 0 and 100, inclusive.
		  ii. An if statement that displays 'ICUP' if X is between 0 and 100, inclusive, and displays '15CS101' otherwise.
		  iii. An if statement that displays 'PESU' if X is between 100 and 1000 inclusive and x is an odd number.
		  iv. An if statement that displays 'ICUP' if X is between 300 and 100 inclusive and x is an even number.
			8

	a)	For lst = [4, 2, 9, 1], what is the result of each of the following list operations?
		
		  i. lst[1]
		  ii. lst.insert(2, 3)
		  iii. del lst[3]
		  iv. lst.append(3)
			4

	b)	Which of the following are valid operations on tuples (for tuples t1 and t2)? Explain your options.
		  i. len(t1)
		  ii. t1 + t2
		  iii. t1.append(t2)
		  iv. t1.insert(t2)
			4

3	c	For the following information of the type <username, password>
		<"PESU","t-12345">, <"B.Tech","t-100">, <"Icup","Subject">, <"Year","First">
		
		Create a relevant dictionary named Password using the above given information. Write a relevant python segment of code accepting user name and password, check if the entered is relevant for the given existing username. Your program should function as shown below as an example.
		
		     Sample Input - 1
		     User name = Icup
		     password = N
		     Password Incorrect
		
		     Sample Input -2
		     User name = Icup
		     password = Subject
		     Password Correct
			8

	d	With a typical example explain the following string applicable sequence operations in python.
		  i. Slice
		  ii. Membership
			4