Register Number:……..

KUMARAGURU college of technology
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B.E DEGREE EXAMINATIONS: MAY 2017

(Regulation 2014)

Sixth Semester

MECHATRONICS ENGINEERING

U14MCT601 : Functional Programming

COURSE OUTCOMES

CO1: Classify and make use of python programming elements to solve and debug simple logical problems.
CO2: Interpret the problem and able to identify checkpoints to create ordered programs.
CO3: Apply the concept of data structures to solve simple non deterministic problems.
CO4: Make use of object oriented concepts to build real time applications.
CO5: Use various functions to manipulate hold set of values.
CO6 Solve complex problems using loop functions.
CO7 Perform arithmetic operations and able to print output.

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Match items in list I with list II CO1 [K_1]

List I	List II
A. A processing pattern that traverses a list and selects the elements that satisfy some criterion	i. Reduce
B. A processing pattern that traverses a sequence and performs an operation on each element.	ii. Filter
C. Process of creating small anonymous functions or functions without name	iii. Lambda
D. A processing pattern that traverses a sequence and accumulates the elements into a single result	iv. Map

	A	B	C	D
a)	ii	i	iii	iv
b)	iii	iv	ii	i
c)	ii	iv	iii	i
d)	ii	i	iv	iii

2. Obtain the output of the following: CO1 [K_2]

print("Hai {name1} and {name2}".format(name1='Mr.X', name2='Mr.Y'))

a) Hai Mr.X and Mr.Y b) Hai {name1} and {name2}

c) Error d) Hai and

3. Which of the following statements are incorrect? CO2 [K_2]

1) Object code is the output of the compiler after it translates the program

2) Semantics is one of the basic elements of the syntactic structure of a program

3) Prompt is the character displayed by the interpreter to indicate that it is ready to take input from the user

a) 1 only b) 2 only

c) 2,3 d) 1,2

4. Give the output when the following statement is executed? CO2 [K_2]

>>"abcd"[2:]

a) a b) ab

c) cd d) dc

5. Assertion (A): The order in which statements are executed i.e flow of execution, should be known. CO4 [K_1]

Reason(R): It has to be ensured that a function is defined before its first usage.

a) Both A and R are Individually true and R is the correct explanation of A b) Both A and R are Individually true but R is not the correct explanation of A

c) A is true but R is false d) A is false but R is true

6. Suppose list1 = [0.5 * x for x in range(0, 4)], list1 is : CO3 [K_2]

a) [0, 1, 2, 3] b) [0, 1, 2, 3, 4]

c) [0.0, 0.5, 1.0, 1.5] d) [0.0, 0.5, 1.0, 1.5, 2.0]

7. Give the order of precedence in python CO7 [K_2]

i) Parentheses
ii) Addition
iii) Multiplication
iv) Division
v) Exponential
vi) Subtraction

a) i,v,iv,iii,ii,vi b) ii,i,iii,iv,v,vi

c) ii,i,iv,iii,v,vi d) i,ii,iii,iv,vi,v

8.	The process which avoids long debugging sessions by adding and testing only a small amount of code at a time is called---------- a) Process Building b) Incremental Development c) Process Development d) Incremental Process		CO5	[K_1]
9.	Assertion (A): Python dictionaries are implemented using hash tables Reason (R) :Dictionary operations are done in constant time a) Both A and R are Individually true and R is the correct explanation of A b) Both A and R are Individually true but R is not the correct explanation of A c) A is true but R is false d) A is false but R is true		CO6	[K_1]
10.	The association of a variable with an object is called a _____ a) Alliance b) Federation c) Reference d) Union		CO7	[K_1]

PART B (10 x 2 = 20 Marks)

(Answer not more than 40 words)

11.	List the characteristic features of Python.	CO1	[K_2]
12.	Define: Functional Programming.	CO1	[K_1]
13.	How will you create a dictionary in python?	CO3	[K_1]
14.	What is the purpose of PYTHONHOME environment variable?	CO2	[K_2]
15.	What is the output of print list if list = ['abcd', 786, 2.23, 'john', 70.2]?	CO3	[K_2]
16.	Write a python script to check if a given key already exists in a dictionary.	CO4	[K_1]
17.	How will you get a space-padded string with the original string left-justified to a total of width columns?	CO5	[K_2]
18.	How will you access a value from a tuple?	CO6	[K_2]
19.	What are the format operators on files?	CO7	[K_2]
20.	Write a compare function that returns 1 if x < y and 0 if x > y. Include appropriate function call and parameters.	CO6	[K_2]

Answer any FIVE Questions:-
PART C (5 x 14 = 70 Marks)
(Answer not more than 300 words)

Q.No 21 is Compulsory

21.	i) Explain functions in python with suitable examples.	(7)	CO5	[K_2]
	ii) Compare Interactive mode and script mode.	(7)	CO2	
22.	i) Write a Python function that accepts a string and calculate the number of upper case letters and lower case letters.	(9)	CO5	[K_2]
	ii) Explain Recursion with suitable examples.	(5)	CO6	
23.	i) Write a function reverse (n) that takes as input a positive integer n and returns the integer obtained by reversing the digits in n.	(7)	CO3	[K_2]
	ii)Explain break and continue statements with suitable examples	(7)	CO7	
24.	i) Explain the following built in Tuple Functions with examples a) cmp () b) len () c) max () d) min () e) tuple ()	(10)	CO3	[K_2]
	ii) Explain basic file operations in python with examples.	(4)	CO5	
25.	i) Write a Python program to add 'ing' at the end of a given string (length should be at least 3). If the given string already ends with 'ing' then add 'ly' instead. If the string length of the given string is less than 3, leave it unchanged	(7)	CO3	[K_2]
	ii) List Overlap Solution: Consider the following lists, A = [1,1,2,3,5,8,13,21,34,55,89] & B = [1,2,3,4,5,6,7,8,9,10,11,12,13] Write a program that returns a list that contains only the elements that are common between the lists (without duplicates). Make sure your program works on two lists of different sizes. Hint: (A intersection B)	(7)	CO3	
26.	i) Explain about decision making statements and loops in Python with examples.	(10)	CO6	[K_2]
	ii) Explain the types of errors that occur in programming.	(4)	CO1	
27.	i) Explain object oriented features in python.	(7)	CO4	[K_2]
	ii) Write a Python class to implement pow(x, n).	(7)	CO4	

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