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REVA UNIVERSITY
Bengaluru, India

Seventh Semester B.Tech CSE Semester End Examination December 2018

Course Title (Subject): Programming with Python

Course Code:BTCS15F7530 (Qp code – 32724)

Time: 3 Hours **Max. Marks: 100**

Note: *Answer ONE FULL question from each unit.*

UNIT – I

1 a) Create an empty list and obtain the list with the following elements: [10,(20,50,90),("REVA", "University"), "Bengaluru",[50,80],{"India","Japan","USA"}] Using the function associated with list (These functions can be used in any order). 9

b) Exception handling is used for handling runtime errors in programming languages. Apply the Exception handling technique for handling the following exceptions with suitable examples: 6

I. TypeError
II. NameError
III. ZeroDivisonError

c) A dictionary in python can be used to implement a Switch statement. Apply concept of dictionary to implement a switch statement of "C programming Language" in Python for developing a simple arithmetic calculator. Use a user defined function to perform arithmetic operations. Read two operands and operator from keyboard using input () function. 10

OR

2 a) Python supports comprehensions to perform operations on list, tuple and sets. Explain the examples different types of comprehensions supported by python. 9

b) Functions take both types of arguments like optional and default. Illustrate the use of optional (default) and named (non-default) arguments in user defined functions with suitable examples. 6

c) Python supports functions to work with files and directories. Illustrate the use of i)getcwd() ii)chdir() iii) join() iv)split() v)glob() on files and directories with suitable examples. 10

UNIT – II

3 a) String supports several methods to operate on. Explain String Methods such as lower(),upper(),split(), splitlines(), count() and index() with suitable examples. 9

b) Consider the string "REVA university Bengaluru, Karnataka, India". Obtain the following output using string slicing operations. 6

i)"REVA India"
ii)"Bengalru Reva"
iii)"BENGALURU INDIA"
iv)" University reva Bengaluru"

c) Construct a regular expression pattern for testing 1's,10's,100's, and 1000s.check whether the following strings of numeric data (convert decimal data to roman numerals) can be accepted or not. 10

i)1998 ii) 108 iii) 3999 iv)2905 v)1907 vi)2609

4 a) Python supports format specifiers to print the output data in a desired format. Illustrate with suitable examples the use of format specifiers in python. 5

b) Python allows regular expression patterns to be written with comments for each element of the pattern to make user understand the meaning of pattern. Explain the "Verbose regular expressions" for recognizing 1's,10's, 100's and 1000's. 10

c) Construct a regular expression pattern to parse the telephone number with the following format 10

i) 800-555-1212
ii) (800) 555-1212
iii) 1-800-555-1212
iv) 800-555-1212x1234
v) work 1-(800) 555.1212 #1234

and test the output by passing the above telephone numbers as inputs.

UNIT – III

5 a) Class is a user defined variable used for representing the data and operations that can be performed on data. Write a python code for 10

i) Creating and instantiating a class
ii) Creating instance and class variables
iii)Using __init__ () and next() functions

b) Write the python code for following 10

i) Generate Fibonacci numbers by considering iter() and next() functions.
ii) Apply product () and findall() functions on real world examples and write the output.

c) Files are handled in the manner similar to "C". Illustrate the use of text files, in python with suitable examples. 5

OR

6 a) Write the python code for the following and write the output also. 6

i) Apply combinations () operation to print all the combinations of (1, 2, 3, 4) by forming groups of 2 numbers each.

ii) consider the inputs:

characters = ('S', 'M', 'E', 'D', 'O', 'N', 'R', 'Y')
guess = ('1', '2', '0', '3', '4', '5', '6', '7')

Obtain the following output by considering "characters" and "guess" inputs.
{'S':'1','M':'2','E':'0','D':'3','O':'4','N':'5','R':'6','Y':'7'}

b) Files are handled in the manner similar to "C". Illustrate the use of binary and zip files in python with suitable examples. 12

c) Python supports the function eval() to evaluate the arbitrary strings as python expressions. illustrate the use of "eval()" with suitable examples 7

UNIT – IV

7 a) Explain with a conceptual diagram showing the relationship between three fundamental objects used to describe the data in an array in python. 7

b) Python supports contiguous and non-contiguous memory layout of ndarray. Explain with suitable examples how python supports both of these layouts. 12

c) Python provides universal functions for working with ndarrays. Illustrate with suitable examples the use of universal functions for arrays. 6

OR

8 a) Since python considers all data types as objects only, ndarray is also considered as an object. Hence, describe all the attributes and methods of ndarray Object with suitable examples. 15

b) Python provides array special methods which are called by python and are used to customize the behavior of the ndarray object. Describe the ndarray special methods provided by python syntax and examples. 10

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