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END Term Examination, Odd Semester 2018-19

Programme: B.Tech **Year: I**

Subject Name: Python Programming **Subject Code:BCSG0001**

Time: 03 Hours **Max. Marks: 50**

Section- A

Note: Attempt All Questions. **(7x5 = 35 marks)**

Q1. Write a Python Program to print all the numbers from 1 to 100 except 50. What is the difference between append and extend function of list? Explain by example.

Q2. Write a Python Program to input 10 natural numbers from the user and add to the list s1 and then find the squares of each entered number and add to the list s2 and finally print s1 and s2.

Q3. What is the difference between sets and frozen sets? Explain both by one example. Explain the operations of sets **symmetric difference and difference** by writing one program.

Q4. Suppose a string S="This is Python". Write the statement which performs the following operations:-

(a) Write the string in reverse order
(b) Extract Python from the string S and print it
(c) Print alternate characters i.e. (T, i, , s, P, t, o)
(d) Print alternate characters in reverse order i.e. (n,h,y, ,i,s,h)
(e) Print in the list format as ['This', 'is', 'Python']

Q5. Write a Python Program to print the Fibonacci series upto 10 terms and print its output inside the list.

Section-B

(a) ***Note:Attempt All Questions:*** **(3x2=6 Marks)**

Q1. Explain by example in what case else block will be executed in exceptional handling concept. What is the use of finally block? Is finally block handles the exception thrown in the try block? Comment on it.

Q2. Write a function largest() which accepts a file name as parameter and reports the longest line in the file along with the number of characters it has.

Q3. How many except blocks are possible with one try block? Explain by example. Write a program that prompts the user to enter a number and prints its cube. If no number is entered (Ctrl+C is pressed), then a KeyboardInterrupt is generated.

(b) ***Note:Attempt All Questions*** **(3x3=9 Marks)**

Q1. Write a Python Program to generate 20 random numbers within a range of 500 to 1000 and write them to the file output.txt

Q2. Write a Python Program to read a file of gas prices in India & France.

India	France
6.30	4.55
9.50	8.20
7.65	3.25

Output the average gas price of each country to an output file named gasout.txt.

Q3. Write an Exceptional handling program in Python that asks the user to enter a number greater than 100 and print it, otherwise explicitly raise an exception.

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End Term Examination, Even Semester 2018-19
B.Tech, CSE Ist Year , II Semester
BCSG0001 : Python Programming

Time: 3 Hour **Maximum Marks: 50**

Section-A

Attempt all the questions **[7 x 5 = 35 marks]**

1. (*Compute the volume of a cylinder*) Write a program that reads in the radius and length of a cylinder and computes the area and volume using the following formulas:

```
area = radius * radius * π
volume = area * length
```

Sample Run:

```
Enter the radius and length of a cylinder: 5.5, 12
The area is 95.0331
The volume is 1140.4
```

2. Explain the difference between lists and tuples in python with an example. Given `score = [30, 1, 2, 1, 0]`, what is the return value of each of the following statements?

```
score.index(1)
score.count(1)
len(score)
max(score)
min(score)
sum(score)
```

3. Write the following function that returns True if the list is already sorted in increasing order:

```
def isSorted(my_list):
    #logic here
```

Write a test program that prompts the user to enter a list and displays

whether the list is sorted or not.

Sample run1:

```
Enter list: 1 1 3 4 4 5 7 9 10 30 11
The list is not sorted
```

Sample run 2:

```
Enter list: 1 1 3 4 4 5 7 9 10 30
The list is already sorted
```

4. Write down four methods of lists in python. How do you create a list for a two-dimensional matrix with three rows and four columns with values 0? What is the output of the following code?

```
matrix = []
matrix.append(3 * [1])
matrix.append(3 * [1])
matrix.append(3 * [1])
matrix[0][0] = 2
print(matrix)
```

5. Given a string, the task is to check and accept the given string if it contains all vowels i.e. 'a', 'e', 'i', 'o', 'u' or 'A', 'E', 'I', 'O', 'U'.

```
Examples :
Input : qlauniversity     Output : Not Accepted
Input : ABeeIghiObhkUul   Output : Accepted
```

6. Explain any four methods of dictionaries in python. For a dictionary **d**, you can use **d[key]** or **d.get(key)** to return the value for the key. What are the differences between them?

7. What is the difference between an Error and an Exception?
   Brief about any three of the following in context to file handling in python:
   a) finally block
   b) try except block
   c) raise
   d) try with multiple except blocks

Section-B

Attempt all the questions **[15 marks]**

A1. Write the output of the following code: **[2]**

```
students = {"peter", "john"}
print(students)
students.add("john")
print(students)
students.add("peterson")
print(students)
students.remove("peter")
print(students)
```

A2. Write the output of the following code: **[2]**

```
s1 = {1, 4, 5, 6}
s2 = {1, 3, 6, 7}
print(s1.union(s2))
print(s1 | s2)
print(s1.intersection(s2))
print(s1 & s2)
print(s1.difference(s2))
print(s1 - s2)
print(s1.symmetric_difference(s2))
print(s1 ^ s2)
```

A3. Explain the difference between **write mode** and **append mode** in open() method with an example. **[2]**

B1. Explain the difference between `read()`, `readline()` and `readlines()` methods to read a file in python. **[3]**

B2. Write the name of any three exceptions in python. [3]

Answer the following questions in context to the given code snippet:

```
try:
    statement1
    statement2
    statement3
except Exception1:
    # Handle exception
except Exception2:
    # Handle exception
except Exception3:
    # Handle exception
finally:
    statement4
statement5
```

a) Suppose that **statement2** causes an exception in the given code, will **statement5** be executed if the exception is not handled?

b) If the statement 2 has exception of type **Exception3**, will **statement4** be executed, and will **statement5** be executed?

c) What will be the order of statement execution, if there is no exception in the program.

B3. Write a program that will count the number of characters, words, and lines in a file. Words are separated by a whitespace character. Your program should prompt the user to enter a filename. [3]

Here is a sample run:

```
Enter a filename: test.txt
1777 characters
210 words
71 lines
```

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End Term Examination, Odd Semester 2019-20

B.Tech(CCV/DA/IoT/CSF/AIML) Year: I Sem: I

Python Programming (BCSG 0001)

Time: 3 Hour Maximum Marks: 50

Section- A

Note: Attempt ANY FIVE Questions. 5 x 4 = 20 marks

(I) Write a program to invert a dictionary.

(II) Write a program which accepts a sequence of comma separated 4 digit binary numbers as its input and then check whether they are divisible by 5 or not. The numbers that are divisible by 5 are to be printed in a comma separated sequence.

Example: 0100,0011,1010,1001

Then the output should be: 1010

(III) Write a program to compute 1/2+2/3+3/4+...+n/n+1 with a given n input by console (n>0).

(IV) What is anonymous function? Describe map( ), filter( ) & reduce( ) function in brief.

(V) Write a recursive function that will check whether a given string is palindrome or not.

(VI) Explain in detail how exceptional handling is done in python.

Section- B

Note: Attempt ALL Questions. 5 x 3 = 15 marks

(I) Write a program to read a file and print the longest line in that file.

(II) Write any 4 methods in re module.

(III) Create an 8X3 integer array using Numpy from a range between 10 to 34 such that the difference between each element is 1 and then split the array into four equal-sized sub-arrays.

(IV) How we can raise an exception?

(V) Explain any 5 methods from math module.

Section- C

Note: Attempt ANY THREE Questions. 3 x 5 = 15 marks

(I) How functions are created in python and what are different kinds of arguments passed to a function.

(II) Write a Python program to read last n lines of a file.

(III) Write the name of any four exceptions in Python. Answer the following questions in context to the given snippet:

```
try:
        statement1
        statement2
        statement3
except Exception1:
        #Handle Exception
except Exception2:
        #Handle Exception
except Exception3:
        #Handle Exception
finally:
        Statement4
Statement5
```

a. Suppose that statement2 causes an exception in the given code, will statement5 be executed if the exception is not handled?

b. If the statement2 has exception of type Exception3, will statement4 be executed and will statement5 be executed?

c. What will be the order of statement execution, if there is no exception in the program?

(IV) Write a Python program to read a file ("input.txt") of oil prices in England, Australia and India. Output the average oil price of each country to an output file output.txt.(Note: All fields are separated with one space)

input.txt

ENGLAND (dollar/litre)	AUSTRALIA (dollar/litre)	INDIA (Rs/litre)
6.62	4.2	9.6
3.8	3.6	2.5
8.6	6.1	4.2
4.2	12.2	8.2

Course Name: Python Programming (BCSG 1001)

Course Outcome

CO1- Python basics and built-in rich python dataset

CO2- Data types and type conversions with logical analysis and operators in Python for developing core concepts

CO3- Understanding of looping, control flow statements, concept of iterators for Python

CO4- Building concepts for raw data and details of string

CO5- Collection data types in Python (list, tuple, dictionary, sets) with built-in modules which has specialized data structures.

CO6- Learning functional programming with higher order functions.

CO7- Python Standard Modules ndarray, random, math, re etc.

CO8- Opening, Reading/ Writing and Finally Closing a text file in Python

CO9- Python Exceptions Handling Mechanism

CO10- Advance searching operation and finding out the correctness of the data using regular expression(regex)

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End Term Examination, Even Semester 2022-23
B. Tech(CSE, EC-CSE), 1st Year, 2nd Semester
BCSG 1001 Python Programming

Time: 3 Hours **Maximum Marks: 50**

Instruction for students:

1. Don't over write.
2. Write the complete code in one place neatly.
3. Maintain appropriate indentation while writing program if needed.
4. Commenting code is optional.

Section – A

Attempt All Questions 4 X 5 = 20 Marks

No.	Detail of Question	Marks	CO	Bl.	KL
1	A password is considered strong if the below conditions are all met: • It has at least 6 characters and at most 20 characters. • It contains at least **one lowercase** letter, at least **one uppercase** letter, and at least **one digit.** • It does not contain three repeating characters in a row (i.e., "B**aaa**bb0" is weak, but "B**aa**b**a**0" is strong). Given a string password, *display the minimum number of steps required to make password strong. if password is already strong, display 0.* In one step, you can: • Insert one character to password, • Delete one character from password, or	4	CO4	An	P

	• Replace one character of password with another character. *Example 1:* Input: password = "a" Output: 5 *Example 2:* Input: password = "aA1" Output: 3 *Example 3:* Input: password = "1337C0d3" Output: 0				
2	Is it possible to find the length of a dictionary in Python Language? Name of the possible exceptions generated during method pop() in dictionary and list? Explain in detail with suitable examples.	4	CO5	R	F,
3	Given a Water Tank (cylindrical shape) with Height=10, radius=5. A pump having flow rate of 15m3 /min. Write a program where user enter the time for the pump to be ON and find the status of tank that can be underflow, overflow or full at user given time. Also display the filled height and remaining height if tank status is underflow.	4	CO2	C	D
4	In linear algebra, a Toeplitz matrix is one in which the elements on any given diagonal from top left to bottom right are identical. Here is an example: 1 2 3 4 8 5 1 2 3 4 4 5 1 2 3 7 4 5 1 2 Write a Python program to determine whether a given input matrix is a Toeplitz matrix or not. Input format The first line contains two space separated integers, R(row) and C(column)	4	CO7	An	PC

	The next R lines contains C space separated integers of array Matrix. Output format Display "Identical" if diagonal from top left to bottom right are identical otherwise "Not Identical"				
5	Write the code in python to open a file named "gla.txt" in-append mode and append the following text at the end of the file. "Don't gamble on the future, act now, without delay". **OR** Name any three dictionary methods in Python that returns any values other than None and explain each with suitable example.	4	CO8/ CO5	U	F

Section – B

Attempt All Questions 3 X 5 = 15 Marks

No.	Detail of Question	Marks	CO	BL	KL

6	Explain the Exception **ValueError** with suitable example.
	Fill in the blanks with most appropriate choice in the function reciprocal(dt) body below so that function can calculate the reciprocal with values accordingly.
	>>> reciprocal (2)
	0.5
	>>> reciprocal(0)
	0
	>>> reciprocal ('hello ')
	'Not valid data'
	Choices (choose any two words and complete the function below)
	1. ValueError
	2. IndexError
	3. ZeroDivisionError
	4. NameError
	def reciprocal(dt):
	try:
		3	CO9	U	PC

	try:
	val = int(dt)
	except _____:
	return 'Not valid data'
	else:
	return 1 / val
	except _____:
	return dt				

7	Implement the following mathematical expression using Python and display the value of C if values of x and y are given by the user. A = 2 sin[[(x+y)/2]* cos [(x-y)/2]] B = 2 cos [[(x+y)/2] * sin [(x-y)/2]] C = √A-πB^2 Consider x and y is number.	3	CO1	A	PC
8	Write a program to find what value which is needed to be added with a given number (input by user) to make the result as a next upcoming prime number. Explanation: Program take an input from user in form of int number i.e say 35. Nearest prime number is 37. So, 2 is needed to be added with 35.	3	CO3	C	P
9	Determine if a sentence is a pangram. A pangram is a sentence which is using every letter of the alphabet at least once. The best known English pangram is: "The quick brown fox jumps over the lazy dog".	3	CO4	An	F
10	Define **global** and **nonlocal** keywords in Python. Explain the Exception **UnboundLocalError** in functions with suitable example.	3	CO9	R	PC

Section – C

*Attempt **All** Questions* 5 X 3 = 15 Marks

No.	Detail of Question	Marks	CO	BL	KL
11	Complete the function is_sorted(tp), which accepts the argument tp(tuple of the integers) and returns 0 if tuple elements are arranged in ascending order,	5	CO6	A	P

	and returns 1 if elements are arranged in descending order.
	Return -1 if elements are unsorted.
	def is_sorted(tp: tuple)-> bool:
	# write logic here
	
	t = eval(input())
	out = is_sorted(t)
	print(out)
	sample test cases
	>>> is_sorted((3, 5, 6, 10))
	0
	>>> is_sorted((2, 8, 5, 7))
	-1
	>>> is_sorted((9, 3, 1, 0))
	1				

12	Write a function expanding (l) that takes input as a list of integers l and returns True if the absolute difference between each adjacent pair of elements strictly increases.
	Here are some examples of how your function should work.
	>>> expanding ([1, 3, 7, 2, 9])
	True
	Explanation: Differences between adjacent elements are 3-1 = 2, 7-3 = 4,
	7-2 = 5 and 9-2 = 7.
	
	>>> expanding ([1, 3, 7, 2, -3])
	False
	Explanation: Differences between adjacent elements are 3-1 = 2, 7-3 = 4,
	7-2 = 5, 2-(-3) = 5, so not strictly increasing.
	>>> expanding ([1, 3, 7, 10])
	False
	Explanation: Differences between adjacent elements are 3-1 = 2, 7-3 = 4,
	10-7 = 3, so not increasing.
		5	CO5	C	P

13	Polycarp has n coins, the value of the i-th coin is ai. Polycarp wants to distribute all the coins between	5	CO3	E	DI

	his pockets, but he cannot put two coins with the same value into the same pocket. For example, if Polycarp has got six coins represented as an array a=[1,2,4,3,3,2], he can distribute the coins into two pockets as follows: [1,2,3],[2,3,4]. Polycarp wants to distribute all the coins with the minimum number of used pockets. Help him to do that. Input The single line of the input contains n integers space separated a1 a2. (1≤ai≤100) values of coins. Output Print only one integer — the minimum number of pockets Polycarp needs to distribute all the coins so no two coins with the same value are put into the same pocket. Examples *Input0* *Input1* 1 2 4 3 3 2 64 100 *Output0* *Output1* 2 1				

CO – Course Outcome, BL – Abbreviation for Bloom's Taxonomy Level (R-Remember, U-Understand, A-Apply, An-Analyze, E-Evaluate, C-Create), KL – Abbreviation for Knowledge Level (F-Factual, C-Conceptual, P-Procedural, M-Metacognitive). However, For Engg. Courses in addition to F, C, P & M include D-Fundamental Design Principles, S-Criteria and Specifications, PC-Practical Constraints, DI- Design Instrumentalities