



MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

IV SEMESTER B.TECH. (COMPUTER AND COMMUNICATION ENGINEERING)

MAKEUP EXAMINATIONS, JUNE 2018

SUBJECT: ADVANCED PROGRAMMING TECHNOLOGIES [ICT 2252]

REVISED CREDIT SYSTEM

(14/06/2018)

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

- ❖ Answer ALL questions.
- ❖ Missing data may be suitably assumed.

- 1A. Write Python programs using dictionary data type for each of the following: 5
 - a. Language translation
 - b. To count number of words, characters and lines of a given file
 - c. To demonstrate caching in Python
 - d. To add two sparse matrices
- 1B. Explain with suitable examples the following Ruby iterators. 3
 - i. times ii. downto iii. each.
- 1C. What is the output of the following Python code? Justify your answer. 2

```
def test(a,**b):
    c=0
    for i in b:
        if c==0:
            r=i;c+=1
        else: r+=i
    print(r)
test(1,w=2,x=3,y=4,z=5)
```
- 2A. Create a Python class to return all possible unique subsets from a set of distinct integers 5

Input:[4,5,6]

Expected Output : [[], [6], [5], [5, 6], [4], [4, 6], [4, 5], [4, 5, 6]]
- 2B. Write a generator function named own_range which works same as built in function range. 3
- 2C. Classify the following Python's datatypes as mutable/not and iterable/not, string, bool, tuple, dictionary. 2
- 3A. Explain with suitable examples the following variables and methods of Python. 5
 - i. Class variables
 - ii. Class methods
 - iii. Static methods
 - iv. Property method
- 3B. Write a user defined function 'Split' which works similar to Python's built in split method. [Don't directly use the in-built split method]. 3

- 3C. Differentiate sort() and sorted() in Python. 2
- 4A. Explain the following Python's string methods with suitable examples for each: 5
- join
 - find
 - endswith
 - translate
 - replace
- 4B. List all the datatypes which are eligible to be used as Python's dictionary keys. 3
- 4C. What is the output of following Ruby code? Justify your answer. 2
- ```
puts "{}" if {}
puts "testing" if nil
puts "1\n" if 1
puts nil==false
```
- Handwritten notes for 4C:*  
 puts "{}" if {} → true  
 puts "testing" if nil → false  
 puts "1\n" if 1 → 1  
 puts nil==false → false
- 5A. Write a Ruby program to move the values in the array to different arrays based on the datatype. 5
- Example: A1 =[:symbol1,1,2.3,"str1",true,false,'str2',5.5,100, {1=>'one',2=>'two'}, [3,4,6],:symbol2]
- Expected Output : Array\_int stores [1,100], Array\_float stores [2.3,5.5] , Array\_bool stores [true,false] and Array\_hash is {1=>"one", 2=>"two"} etc..
- Array\_symbol is [symbol1,symbol2],  
 Array\_string is [str1,str2],  
 Array\_array is [[3,4,6]].
- 5B. What is the output of the following Python code? 3
- ```
L=[1,2,3,4]
T=tuple(L)
for i in range(10,5,-1):
    L.append(i)
print(L)
S1=set(L[2:6])
L[-2:]=['x','y','z']
print(L)
T=T*2
S2=set(T[5:])
a,*b,c=T
print(a,b,c,sep='%')
print(S1,S2)
print(S1|S2)
print(S1^S2)
for i in zip(L,T):
    print(i)
```
- 5C. Differentiate frozensets and sets in Python? Give an example for each. 2