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Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
FIRST SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

**Course Code: BE101-05**

**Course Name: INTRODUCTION TO COMPUTING AND PROBLEM SOLVING**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer all questions.*

Marks

- 1 Differentiate between digital computers and analog computers. (3)
- 2 What is high level language? Give four examples. (3)
- 3 Explain the concept of top down design for solving a problem. (3)
- 4 Write an algorithm to check whether a number is odd or even. (3)
- 5 Differentiate between int () and round() functions in python (3)
- 6 Write a Python program to compute the sum  $1+1/2+1/3+\dots+1/n$ . Display the result in float with 2 decimal positions. (3)
- 7 Write the output of the following program fragment. (2)  

```
def check(x,y):  
    if y==0:  
        print "error"  
        return  
    else:  
        return(x/y)  
a,b=2,4  
print check(a,b)
```
- 8 Explain type coercion with an example (2)
- 9 Write an user define function in Python to print a newline. (2)
- 10 What will be the output of the given code? (2)  

```
>>>str=""  
>>>list=["hello","world"]  
>>>print(str.join(list))
```
- 11 Let fruits = {'apple':5,'orange':2,'banana':10}. Write the python expressions (3) for the following operations:
  - i. To add the key value pair ('mango':8)

- ii. To display the number of items in the dictionary
- iii. To remove the key value pair ('orange':2)

- 12 'Lists are mutable while tuples are immutable' Justify the statement. (3)
- 13 Write the output of the following print statements in python. .

```
>>>f=open(test.txt,"w") (2)
>>>f.write("Apples\nMangoes\nGrapes")
>>>f.close()
>>>f=open(test.txt,"r")
>>>print f.readline()
>>> print f.readlines()
```

- 14 Explain the use of dump() and load() methods in python. (3)
- 15 Predict the output of statement1 and statement2

```
class ABC: http://www.ktuonline.com
    A=10
    def fun():
        A=5
        print A
Obj=ABC()
print A //statement1
Obj.fun() //statement2
```

**PART B**

*Answer any four full questions, each carries 8 marks.*

- 16 What is memory hierarchy? Explain with a neat diagram. Compare in terms of speed, cost and storage. (8)
- 17 Give an algorithm and flow chart to find the largest among N numbers (8)
- 18 Write a Python program to print the odd composite numbers between m and n, (8) where m and n are positive integers greater than 1.
- 19 Write a menu driven Python program to input a number and implement the (8) following operations. Use separate functions to implement each operation.
- i) check whether the number is odd or even
  - ii) check whether the number is positive, negative or zero

- iii) generate factors of the number
- 20 What is recursion? Write a python program to calculate nPr. Use a recursive function fact() to find the factorial of a number.[ $nPr = n! / (n-r)!$ ] (8)

**PART C**

*Answer any two full questions, each carries 14 marks.*

- 21 a) Write a Python program to input a string and perform the following operations.
- Reverse the string without using reverse() function.
  - Check for a substring in the string
  - Find all the occurrences of a particular character in the string and print the indices at which the character appears. (7)
- b) Write a python program to store a line of text to a file. Read the file and display only the palindrome words in the file. (7)
- 22 a) What is a dictionary? With an example explain any five dictionary operations in python. (7)
- b) Define a class in Python to store the details of students (rollNumber, Mark1, Mark2), with the following methods:  
readData()- to assign values to class attributes  
computeTotal() – find the total marks  
print\_details()- to display the attribute values and the total marks  
Create an object of the class and invoke the methods. (7)
- 23 a) Write a Python program to read two matrices and perform matrix addition. (7)
- b) What are the basic file operations and operating modes in Python? Explain. (7)

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