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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. <pre>def check(x,y): if y==0: print "error" return else: return(x/y) a,b=2,4 print check(a,b)</pre>	(2)
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? <pre>>>>str="*" >>>list=["hello","world"] >>>print(str.join(list))</pre>	(2)
11	Let fruits = {'apple':5,'orange':2,'banana':10}. Write the python expressions for the following operations: i. To add the key value pair ('mango':8)	(3)

- 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. (2)
- ```
>>>f=open(test.txt,"w")
>>>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:
    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, where m and n are positive integers greater than 1. (8)
- 19 Write a menu driven Python program to input a number and implement the following operations. Use separate functions to implement each operation. (8)
- 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. (7)
- 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.
- 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: (7)
- 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.
- 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)
