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Reg. No.:_____ Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIRST SEMESTER B.TECH DEGREE SPECIAL EXAMINATION, SEPTEMBER 2016

Course Code: BE101-05

Course Name: INTRODUCTION TO COMPUTING AND PROBLEM SOLVING

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions

1. Von Neumann Architecture uses Stored Program concept. What do you infer from this statement? (3)
2. Which are the parameters used for rating the performance of a computer? (3)
3. Draw a flowchart to find given number is odd or even. (2)
4. List the symbols used in flowchart and describe where each one is used. (2)
5. Write an algorithm to display even numbers in reverse order starting from 50 to 0. (2)
6. Give the syntax for if statement in python. Explain how alternative execution and chained conditionals performed in python with examples. (3)
7. Given,

   a=6

   b=7

   c=42

   Evaluate the following expressions

   Print 1, not a==7 and b==7

   Print 2, not(a==7 and b==6)

   Print 3, not a==7 and b==6 (3)
8. Which of the following is *not* a reason to use a function in your program? Justify your answer.
   a) To break a program into pieces that make sense
   b) To make your program run faster
   c) To produce code that will perform the same action many times but with different values each time
   d) To place repeated code in one place so it can be reused (2)
9. What is the difference between type conversion and coercion in Python? Give an example for each. (2)

10. Write a program to calculate *nCr* with a function for finding out factorial.

    [Note: - nCr=n!/r!*(n-r)!] (2)

11. What are the different ways in which we can delete an item from a list? Explain with examples. (2)

12. Consider the following code snippet:

```
one = "This a test!"
one[2] = "u"
print one
```

What error will the above code produce? Why is the error caused? Write the Python code which will work around this issue and print the string "Thus a test!" as output. (3)

13. Assume that the variable *data* refers to the dictionary {"b":34,"a":67}. Write the expressions that perform the following tasks

    a) Replace the value at key "b" with negation of the value.

    b) Add key:value pair "c":56 to *data***.**

    c) Remove the value at key "a" in *data***.** (3)

14. The following code sequence fails with a traceback when user enters a file that does not exist. How would you avoid the traceback and make it so you could print out your own error message when a bad file name was entered?

```
fname = raw_input('Enter the file name: ')
fhand = open(fname)
```

    Justify your answer. (2)

15. Compare class and object. Generate a class to represent a rectangle. (3)

16. What is pickling? How does it aid in putting values into a file? Also, what happens when the "load" method is invoked? (3)

PART B

Answer any 4 complete questions each having 8 marks

17. a) Describe the memory hierarchy of a computer with the help of a diagram (3)

    b) Write notes on internal memory. (5)

18. Design an algorithm and flowchart to generate 0,1,1,2,3,5,8,13,21,34…..

19. Write a program to generate all prime numbers in a given range.

20. a) Write a python program to find the roots of a quadratic equation. (4)

    b) Define recursion with an example function. (4)

21. a) List the advantages of using functions. (3)

b) Write a Python program to calculate the area of a circle, given the centre and a point on the perimeter. Use a function to find radius as the distance between two points. (5)

Answer any 2 complete questions each having 14 marks

22. a) With examples explain the built-in methods used for list operations. (7)

b) Create a dictionary named 'stock'. Add the following elements to stock and perform the following operations.

pencil - 400, pen - 1000, eraser- 200,

ink -50

i. Print stock.

ii. Delete ink and print stock.

iii. Explain keys and key- value pairs find the number of key-value pairs and identify the keys. (7)

23. a) Write a program to replace a substring with a new substring in the given string. (7)

b) Write a program that reads a file and writes out a new file with the lines in reversed order.(7)

24. a) Write a function that gets input from the user and handles the Value Error exception. Describe how exceptions are handled in Python (8)

b) Create a class Student with attributes name and roll no. and a method dataprint() for displaying the same. Create two instances of the class and call the method for each instance. (6)