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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S1 (S,FE) S2 (S,FE) Examination May 2024 (2015 Scheme)

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	Explain the steps involved in an instruction cycle.	(2)
2	Define assembler, compiler and interpreter.	(3)
3	What is the difference between pseudo code and algorithm.	(3)
4	List the basic flowchart symbols and mention its uses.	(3)

5	What is the output of the following code:
	`fruits = ["apple", "banana", "cherry"]`
	`for x in fruits:`
	`  if x == "banana":`
	`  break`
	`print(x)`
		(3)

6	Write the output of the following code:
	`term="Python"`
	`print (term*3)`
		(2)

7	Write the basic format of while() statement with example.	(2)
8	Explain the need of functions used in a programs.	(2)
9	Explain range() function used in python with example.	(2)
10	Write a program to calculate the factorial of a number using function.	(2)

11 Write the output of the following code: (2)

```
alphabet = "abcdefghij"
print alphabet[1:4]
print alphabet[1:8:2]
```

12 Differentiate between list and tuples. (2)

13 How can access values in a dictionary. Illustrate with example. (3)

14 Explain the different access mode of files. (3)

15 What is Pickling? Explain the methods for performing operations? (3)

16 Create a class of car with attributes colour. model and price and create a method display() to display all the attributes and their values. Create two instances of class that invoke the method display(). (3)

PART B

Answer any four questions. Each question carries 8 Marks

17 a) Draw and explain the Von-Neumann architecture of a digital computer. (6)

b) Describe the memory hierarchy of a computer system. (2)

18 a) Write an algorithm for calculating the sum of digits of a number. (4)

b) Draw a flowchart to find the solution of a quadratic equation. (4)

19 a) Write a python program to calculate the sum and average of N given numbers. (4)

b) Explain break and continue statement with suitable examples. (4)

20 a) Write a menu driven python program to build simple calculator functions such as addition, subtraction, multiplication and division operations. Use a separate function to implement each operation. (4)

b) Define recursion. Write a python program to calculate the sum of first n positive .integers using recursive function. (4)

21 a) Write a python function to check whether the given number is perfect number or not. (6)

b) Explain the functions of an operating system. (2)

PART C

Answer any two full questions. Each carries 14 Marks

22 a) Given a list of integers with duplicate elements on it. Write a python code to generate a new list which contain only the duplicate elements. (7)

b) Explain any seven built in dictionary methods. (7)

23 What is exception in python? List any three built-in exceptions in python? Describe how exceptions are handled in python? (14)

24 a) Perform the following operations: (12)

(i). Create a dictionary to represent car with the keys brand, model and colour. Give appropriate values for each key.

(ii). Print the value for each element in the dictionary.

(iii). Add a new element with key as mode and value as automatic.

(iv). Check whether the key is exist in the dictionary.

(v). Remove an item from the dictionary.

(vi). Remove all items from the dictionary.

b) Explain the various file position methods in python. (2)

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