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Code No. : 13110 ISL

VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E. (CBCS) III-Semester Main Examinations, December-2017

Introduction to Scripting Languages

Time: 3 hours

Max. Marks: 70

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Part-A (10 × 2 = 20 Marks)

1. Define unpacking of a variable. Also provide an example.
2. `print("Enter your name:")`
`name = input()`
Change the above two python statements into a single python statement and mention the version of python required to run the above two statements.
3. Name any two decision making statements supported in python along with their syntax.
4. Compare a list and a string with respect to the values which they can contain. Also write a python statement(s) which converts a string to a list of characters.
5. Illustrate the use of the following built-in functions with an example
i) `type()` ii) `sqrt()`
6. "Even if the statement or expression is syntactically correct, it may cause an error when an attempt is made to execute it"
In the above statement what type of error is being discussed and can such type of errors be handled by writing python statements. Justify your answer.
7. Assume that you have a function named `getQuote()` defined in module `stockdetails.py`. This `getQuote()` function is being called from another module named `printstock.py`. Provide any two ways in which you can write a python statement in `printstock.py` module to have access to `getQuote()` function.
8. Demonstrate the concept of Inheritance with an example.
9. State any two advantages of using virtual environments.
10. List any four python packages related to creating a project skeleton.

Part-B (5 × 10 = 50 Marks)

(All sub-questions carry equal marks)

11. a) Given values of variables a, b, c and d as
`a = 10, b = 3, c = 1 and d = 5`
and the expression
`z = a / b ** c - d`
 - i) How many steps are required to determine the value of z?
 - ii) Illustrate the steps representing the order of evaluation by enclosing the operands in parentheses at each step.
 - iii) Determine the value of z for python2 and python3.
- b) Write a python program which takes the first name and last name of a person as two command line arguments and prints 3 lines as output where
 - i) first line must print the last character of the first name
 - ii) second line must print first character of the last name
 - iii) third line must print the first name and last name concatenated together having a space in between them.Assume that the program is written in a file named `greet.py` and write the python command to run the program which takes sample input tom as first name and cruise as last name.

12. a) Distinguish between a list and a dictionary. Also illustrate with examples of creating a list and a dictionary along with any two operations which can be performed on them.
- b) Create a python program which uses a dictionary to store the name of five subjects along with their marks as a key-value pair. These five key value pairs must be taken from the user as input by using a while loop. Once the dictionary is populated, print its content on screen.

13. a) Write a python program which contains three functions i.e get_details(), compute_age() and display(). The get_details() function does not take any arguments, it prompts the user to enter his/her name and age and stores them in two global variables. The compute_age() function computes the age of the person five years from current age and returns the computed value. The display() function calls compute_age() function and displays the text as follows. (Assuming that user gave the name as Tony and age as 55).
Hello Tony after 5 years you will be 60.

- b) Illustrate the concept of exception handling mechanism with a python program.

14. a) from copy import *

```
class Engine:
```

```
    pass
```

```
class FlyingMachine:
```

```
    def __init__(self, engine):
```

```
        self.engine = engine
```

```
    rotary = Engine()
```

```
    helicopter = FlyingMachine(rotary)
```

```
    helicopter_clone = copy(helicopter)
```

Analyze above code and answer the following questions:

- Mention the type of object copying technique being used.
- How many number of objects will be created when the above code executes.
- Justify your answer for question ii
- State the type of relationship between the FlyingMachine and Engine class.
- Draw the object diagram for above code.

- b) Explain the concept of modules using python code.

15. a) Assume that the following function is present in a module named tax.py and is a part of the project named incometax.

```
def property_tax(rent):
```

```
    ptax = rent * (30.0/100)
```

```
    return ptax
```

Write a python program which does the automated testing of the above code using nose tool (test for inputs 3500, 4000 and 5300). Where would you place the python script in the project skeleton? Also specify the name of the script.

- b) Assume that you have created a project skeleton and you are using the project skeleton as a template to create a python project. Following are the details of the project
project name : banking
list of modules containing the logic : core_banking.py, investment_banking.py
Construct a tree structure representing all the directories and files in the project, including test scripts for all the modules.

16. a) Compare + and % with respect to their use as

- i) mathematical operators
- ii) Operators used in the context of strings

Also give an example of using * operator with string variables with explanation.

b) Create a python program which takes five numbers from user as input; stores them in a list; The program then prints the maximum and minimum numbers in the list as output. Use a for loop for taking input.

17. Answer any *two* of the following:

a) Relate the following terms

- i) `__main__`
- ii) frame
- iii) function
- iv) Stack Diagram

Draw the stack diagram for following python script

```
def property_tax(rent):  
    ptax = rent * (30.0/100)  
    return ptax  
def sales_tax(income):  
    stax = income * (10.0/100)  
    return stax  
def total(ptax, stax):  
    return ptax+stax  
ptax = property_tax(1000)  
stax = sales_tax(3000)  
print(total(ptax,stax))
```

b) Suraj is a chef. He tells that food items can be classified into four categories i.e milk product, fruits, vegetables and meat; A milk product can either be fermented or non fermented. He also says that a fruit can be of either citrus or non-citrus. Write a python script which captures the concept of above food items in terms of different classes and relationships between them.

c) State the purpose of using pip tool and list any four operations which can be performed using pip tool with examples.

