Tal12CS

Tenkasi District
Common Quarterly Examination - 2024

Standard 12
COMPUTER SCIENCE

Time Allowed: 3.00 Hours Maximum Marks: 70

1. Choose the correct answer from the given four alternatives: 15×1=15

1) Which of following is a distinct syntatic block?
a) Subroutines b) Function c) Definition d) Modules

2) Which of the following data type that are direct implementations of a relatively simple concept?
a) Built-in data type b) Derived data type
c) Concrete data type d) Abstract data type

3) The process of sub-dividing a computer program into separate sub-program is called
a) Modular programming b) Object-oriented programming
c) Procedural programming d) Event driven programming

4) The θ notation in asymptotic evaluation represents
a) Base case b) Average case c) Worst case d) Best case

5) The python prompt indicates that interpreter is ready to accept instruction
a) >> b) >>> c) << d) <<<

6) The values which are passed to a function definition are called
a) Sub-routine b) Definition c) Arguments d) Parameters

7) Which statement is generally used as placeholder?
a) Pass b) Break c) Continue d) Goto

8) What is the output of the following function?
print (math.floor (8.9))
a) 8.0 b) 8.9 c) 8 d) 9

9) Strings in python:
a) flexible b) mutable c) immutable d) changeable

10) Which of the following python function can be used to add more than one element within an existing list?
a) append() b) extend()
c) more() d) append_more()

11) The process of creating an object is called as
a) Constructor b) Destructor c) Initialize d) Instantiation

12) Which method gets called automatically when we deleted the object reference using the del.
a) --init--() b) --del--() c) --rem--() d) --func--()

13) Let setA = {3, 6, 9}, setB = {1, 3, 9}. What will be the result of the following snippet?
print(setA-setB)
a) {1, 6} b) {6} c) {1, 3, 6, 9} d) {3, 9}

14) Which of the following is the output of the following code?
str1 = "TamilNadu"
print(str1[::-2]
a) TamilNadu b) Tmlan c) ulmT d) ualmT

15) In which arguments, the correct positional order is passed to a function?
a) Required b) Variable length c) Default d) Keyword

II. Answer any six questions. Question No. 24 is compulsory: **6×2=12**

16) Define function with respect to programming language.
17) Differentiate constructors and selectors.
18) What is algorithmic solution?
19) Write short notes on Tokens.
20) What are the main advantages of function?
21) What is the use of lambda function?
22) Write any four formatting characters and its usage.
23) How will you access the list elements in reverse order?
24) What is the output of the following python code?

```
>>> squares = [x**2 for x in range (1, 6)]
>>> print(squares)
```

III. Answer any six questions. Question No. 33 is compulsory: **6×3=18**

25) Differentiate pure and impure function.
26) Define Global scope with an example.
27) Discuss about Algorithmic complexity and its types.
28) Write a short note on logical operator with examples.
29) What are the points to be noted while defining a function?
30) What is the use of format ()? Give an example.
31) What are the difference between List and Dictionary?
32) How do you define constructor and destructor in python?
33) Write a program to display

```
1
1  2
1  2  3
1  2  3  4
1  2  3  4  5
```

IV. Answer all the questions: **5×5=25**

34) a) Explain with example pure and impure functions.

(OR)

b) What is List? Why List can be called as pairs? Explain with suitable example.

35) a) Write any five benefits in using modular programming.

(OR)

b) Explain the characteristics of an algorithm.

36) a) Describe in detail the procedural script mode programming.

(OR)

b) Write a program to display all three digit odd numbers.

37) a) Explain the different types of function with example.

(OR)

b) Write the output for the following python commands:

```
str1 = "Welcome to Python"
```

i) print(str1)
ii) print(str1[11:17])
iii) print(str1[11:17:2])
iv) print(str1[::4])
v) print(str1[::-4])

38) a) What is the purpose of range()? Explain with an example.

(OR)

b) Explain about constructor and destructor with suitable example.

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XII · Computer Science · Marks

I 1. c) Definition.
2. ~~c) Concrete~~ c) Concrete Data type
3. a) maturity Programming.
4. b) Average case.
5. b) >>>
6. c) Arguments
7. a) pass.
8. ~~c) arguments~~ c) 8
9. ~~c) 8~~ c) immutable.
10. b) extend c)
11. d) Instantiation.
12. b) __del__ ().
13. b) {6}
14. d) u a im T.
15. a) Required.

II 16. * A function is a unit of code that is often defined with in greater code structure * A function contains a set of code that works on many kinds of inputs, like variants, expressions and Produces a Concrete output. — 2 marks

17. Constructors: Selectors

1. Constructors are functions that build the abstract datatype. Selectors are functions that retrieve information from datatype.

Example:
2. city = makecity (name, lat, lon) Example: get name (city)
get lat (city)
get lon (city)

3. Constructors create, an object, bundling together different pieces of information. Selectors Extract individual pieces of information from the object

— Any two points — 2 marks

18. An algorithm that yields expected output for a valid input is called an algorithmic solution. — 2 marks

19. * Python breaks each logical line into a sequence of elementary lexical components known as Tokens — 1 marks.

Types

1) Identifiers.
2) Keywords 3) operators 4) Delimiters 5) Literals. — 1 marks

20. * It avoids repetition and makes high degree of code reusing
* It provides better modularity for your application. — 2 marks

21. * Lambda functions is mostly used for creating small and one-time anonymous function
* Lambda functions are mainly used in combination with the functions like filter(), map() and reduce. — 2 marks.

22. %c — character %d (or) %i — Signed decimal Integer %s — String %u — unsigned decimal integer %o — octal Integer
(or any four) — 2 marks.

23) * Python enables reverse or negative Indexing for the list elements
* Python list index in opposite order
* Python sets −1 as the index value for the last element in list and −2 for the preceding element and so on. This is called as Reverse indexing — 2 marks.

24) [1, 4, 9, 16, 25] — 2 marks

25.

Pure function	Impure function
1. The return value of the pure functions solely depends on its arguments passed.	The return value of the impure functions does not solely depends on its arguments passed.
2. They do not have side effects	They have side effects.
3. They do not modify the arguments which are passed to them.	They may modify the arguments which are passed to them.

— 3 marks

26.

Global Scope:

* a variable with Global scope can be used any where in the program.
* It can be created by defining a variable outside the scope of any function / block.

— 2 marks

Example:

```
c=1
def add():
    print(c)
add()
```

— 1 marks.

(or) any suitable Example

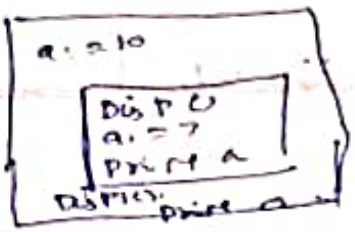
(OR)

* A variable which is declared outside all the functions in a program is known as global variable.
* Global variable can be accessed inside or outside of all the functions in a program.

Example:

TNPL

1. a:=10
2. DispO
3. a:=7
4. Print a
5. DispO
6. Print a



7
10

27. The complexity of an algorithm f(n) gives the running time and/or the storage space required by the algorithm in terms of n as the size of input data — 1 marks
i) Time complexity
ii) Space complexity with Explanation — 1 marks

28. * Logical operators are used to perform logical operations on the relational Expressions — ~~1 marks~~
i) And ii) or iii) Not. — 2 marks
Example Program — 1 marks.

29. * function blocks begin with the keyword "def" followed by function name & parenthesis()
* Any input parameters or arguments should be placed with in these parenthesis when you define a function
* The code block always comes after a: colon (:) and is indented
* The statement return [expression] exits a function optionally passing back an expression to the caller
— 3 marks

30. * The format() function used with strings is very powerful function used for formatting strings.

* The curly braces {} are used as placeholders or replacement fields which are replaced with format() function. — 2 marks

Example:

```
num1 = int(input("number 1:"))
num2 = int(input("number 2:"))
print("The sum of {3} and {3} is {3}".format(num1, num2, num1+num2))
```

— 1 mark

31.

	List	Dictionary
1.	List is an ordered set of elements	A dictionary is a data structure that is used for matching one element (key) with another value (key)
2.	The index values can be used to access a particular element.	Dictionary keys are not in order.
3.	Lists are used to look up a value.	Dictionary is used to take one value & look up another value.
4.	Syntax: `variable_name [element1, element2, element3 ... elementn]`	`Dictionary_name = { key_1: value_1; key_2: value_2; ..... key_n value_n; }`
5.	It is enclosed with in square brackets.	The key value pairs are enclosed with curly braces.

(Or any 3 points) — 3 marks

32) Constructor:

* Constructor is a special function that is automatically executed when an object of a class is created

* __init__() method is used as constructor

(or)

```
def __init__(self,[args....]):
    <statements>
```

Destructor:

Destructor is called a special method to destroy the objects. __del__() method is used as destructor

(or)

```
def __del__(self):
    <statements>
```

– 3 marks.

33)

```
i=1
while (i<=6):
    for j in range (1,i):
        Print (j,end='\t')
    Print (end='\n')
    i+=1
```

– 3 marks

(OR) Any suitable program

IV 34) a) Pure functions:

* Pure functions are functions which will give exact result when the same arguments are passed.

Example:

2 1/2 marks

Impure functions:

The functions which cause side effects to the arguments passed are called Impure functions

Example:

2 1/2 marks.

b) * List is constructed by placing expressions within square brackets separated by commas.

* List can store multiple values

* Each value can be any type and can even be another list – 2 marks

* Any way of bundling two values together into one can be considered as a pair.

* Lists are a common method to do so

* Therefore LIFO can be called as PUSH — 2 marks
A suitable example — 1 marks

25) a)
* Less Code to be written
* The code is stored across multiple files
* Code is short, simple and easy to understand
* The same code can be used in many applications
* The saving of variables can easily be controlled

— (OR) Any 5 Points. — 5 marks

b)
1. Input
2. output
3. Finiteness
4. Definiteness
5. Effectiveness
6. Correctness
7. Simplicity
8. unambiguous
9. feasibility
10. Portable
11. Independent
(Any five headings with Explanation) — 5 marks

26) a) Script Definition
(i) Creating Scripts in Python
(ii) Saving Python Script
(iii) Executing » »
(with Explanation) 5 marks.

b)
```
for i in range(101, 1000, 2):
    print(i)
```
(OR) Any suitable Program

37) a)
1. User defined functions
2. Built in »
3. Lambda »
4. Recursion »
5 marks
With Explination.

b) i) Welcome to Python
ii) Python IL
iii) Pt o

(iv) w o t y n.
(v) n y t o w

38) a) * Range() is the functin used to generate a series of values in Python
* using range() functin we can create list with series of values
* The range() function has three arguments
Syntax
range (start, stop, [step])
Suitable example with Explaination.
— 5 marks

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b) Ref Part III 32 question.
With Suitable Example.
— 5 marks.