

TV112CS

Common Quarterly Examination - September 2022



Standard 12
COMPUTER SCIENCE

Time Allowed: 3.00 Hours

Maximum Marks: 70

PART - I

- i) All questions are compulsory. 15×1=15
 ii) Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer.

- 1) The variables in a function definition are called as
 a) Subroutines b) Files c) Arguments d) Parameters
- 2) The datatype whose representation is unknown are called
 a) Built in data type b) Derived data type
 c) Abstract data type d) Concrete data type
- 3) Which of the following is used in programming languages to map the variable and object?
 a) = b) := c) :: d) ==
- 4) The Θ notation in asymptotic evaluation represents
 a) Base case b) Average case c) Worst case d) Null case
- 5) _____ command is used to Python script.
 a) Run → Run module b) Run - Run
 c) Run → Compile d) Run - F5
- 6) Python comment statement starts with _____ symbol.
 a) >>> b) \$ c) # d) "
- 7) Select the correct option according to given two statements.
 I. In python branching is done using different types of looping construct.
 II. Pass statement is generally used as a place holder.
 a) I - True and II - False b) I - False & II - True
 c) I-II Both are True d) I-II Both are False
- 8) The condition in the if statement should be in the form of
 a) arithmetic or relational expression b) arithmetic or logical expression
 c) relational or logical expression d) arithmetic expression
- 9) Which of the following keyword is used to begin the function block?
 a) def b) class c) for d) if
- 10) Which of the function returns the square root of the given number?
 a) pow () b) floor () c) sqrt () d) sqrt ()
- 11) What is the output of the following code?

```
str1 = "Nellai CST Express"
str1 [10] = "-"
print(str1)
```

 a) Nellai CST - Express b) Nellai CS - Express
 c) Nellai Express d) Type error
- 12) What is the string formatting operator in python?
 a) " b) [] c) % d) Format ()
- 13) Pick odd one in connection with collection data type.
 a) List b) Tuple c) Dictionary d) Loop
- 14) Which of the following python function can be used to add more than one element with in an existing list?
 a) append () b) appendmore () c) extend () d) more ()
- 15) The process of creating an object is called as
 a) Constructor b) Destructor c) Initialise d) Instantiation

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PART - II**Note: Answer ANY SIX questions. Q.No. 24 is compulsory.****6×2=12**

- 16) What is a subroutine?
- 17) Notes on Namespace.
- 18) Write about Tokens.
- 19) Do you modify the string in python.
- 20) Write the different types of functions in python.
- 21) Differentiate del statement with remove () function of List.
- 22) Differentiate List and Tuples.
- 23) Write about public and private data members of a class.
- 24) What is the output of the following python code?


```
for ch in "Jump statement":
    if ch == 'e':
        continue
    print (ch, end=' ')
print ("\n End of the Program")
```

By,

**E.RAJKUMAR M.C.A.,
B.Ed
P.G Assistant in
Computer Science
Tenkasi district**

PART - III**Note: Answer ANY SIX questions. Q.No. 33 is compulsory.****6×3=18**

- 25) Differentiate concrete data type and abstract data type.
- 26) Lists the characteristics of an algorithm.
- 27) Explain Ternary operator with examples.
- 28) What is escape sequences? Give example.
- 29) Write the syntax of the if else statement with an example.
- 30) What is composition in functions?
- 31) Note on the following functions:
 - (a) Capitalize ()
 - (b) Swap case ()
- 32) Define Constructor and Destructor.
- 33) Write a python program to generate first ten even numbers in a list.

PART - IV**Note: Answer ALL the questions.****5×5=25**

- 34) a) Explain with an example Interface and Implementation.
(OR)
b) What is binary search? Discuss with examples.
 - 35) a) Describe in detail the procedure of script mode programming in python.
(OR)
b) Write a detail notes on for loop with an example.
 - 36) a) Write the type of function arguments of python with examples.
(OR)
b) Write a python code to find the L.C.M. of two numbers.
 - 37) a) Explain with suitable examples to separate the strings using slicing operator.
(OR)
b) What is the different ways to insert an element in a list? Explain with suitable examples.
 - 38) a) Explain the different set operations supported by python with examples.
(OR)
b) Explain the steps to create a class and access their members with examples.
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Quarterly Examination - Answer key - SEP-2022
 Tenkasi District & Tirunelveli District.
 XII Computer science - Answer key.

PART-I

1. d) Parameters
2. C) Abstract Data type
3. a) =
4. B) Average case.
5. a) Run → Run module.
6. a) → → → c) #
7. b) I - False & II - True
8. C) Relation or Logical expression
9. a) def
10. d) SQRT()
11. d) TYPE Error
12. C) %
13. d) loop
14. c) extend
15. d) Instantiation

Part-II

16. Subroutine:

* Subroutines are the basic building blocks of computer programs. - 1 mark

* Subroutines are small sections of code that are used to perform a particular task that can be used repeatedly. - 1 mark

17. Namespaces are containers for mapping names of variables to objects. - 2 marks

18. Python breaks each logical line into a sequence of elementary lexical components known as Tokens. - 1 mark

The normal token types are
 1) Identifiers.

- 2) Keywords
- 3) Operators
- 4) Delimiters and
- 5) Literals

- 1 mark

19. Python does not support any modification in its strings.

- 1 Mark

But, it provides a function `replace()` to change all occurrences of a particular character in a string

- 1 mark

- 20.
1. User defined Functions
 2. Built in Functions
 3. Lambda Functions
 4. Recursion Functions

} $4 \times \frac{1}{2} = 2$ marks.

21. del

1. del statement is used to delete known elements.

remove

remove() function

is used to

delete elements of

a list if its ^{index is} unknown

2. del statement can also be used to delete entire list.

remove() function

is used to delete

a particular element

22. List

1. The elements of a list are changeable (mutable)

- 2 marks

Tuples.

The elements of

a tuple are unchangeable

(immutable)

2. List are enclosed within square brackets.

Tuples are enclosed

within parenthesis.

3. Example:

`a = [10, 20, 30, 40, 50]`

Any two points:

Example:

`a = (10, 20, 30)`

- 2 Marks

23. Public members:
The variables can be accessed anywhere in the program using dot operator (or) 1 marks

The variables which are defined inside the class is public by default.

Private members:

The variables can be accessed only within the class. 1 marks.

A variable prefixed with double underscore becomes private in nature.

24. Jump statement
End of the program 2 marks.

Part-III

25. Concrete data type.

1. A concrete data type is a data type whose representation is known.

2. Concrete data type or structures (COT's) are direct implementation of a relatively simple concept.

Abstract data type.

Abstract data type the representation of data type is unknown.

Abstract Data Types (ADT's) offer a high level view (and use) of a concept independent of its implementation.

3 marks

26. 1. Input
2. output
3. Finiteness
4. Definiteness
5. Effectiveness
6. correctness
7. simplicity
8. Unambiguous
9. feasibility
10. Portable
11. Independent (any six)

$6 \times \frac{1}{2} = 3$

27. Ternary Operator is also known as conditional operator.

It evaluate something based on a condition being true or false

- 2 marks

Syntax:

Variable Name = [on_true] if [Test expression] else [on_false]

(OR)
Example:

min = 50 if 4 < 50 else 70

min = 50 if 4 > 50 else 70

(OR)

Any suitable Example Program

- 1 marks

28. * In Python strings, the backslash "\" is a special character, also called the "escape" character

* It is used in representing certain white space characters.

- 1 1/2 marks

Escape sequence character	Description	Example	Output
\\	Backslash	>>> print("\\test")	\ test
\'	Single quote	>>> print("doesn't")	Doesn't
\"	Double quote	>>> print("Python")	Python
\n	New line	>>> print("Python\n10' lang")	Python 10' lang
\t	tab	>>> print("Python", "\t", "Lang")	Python Lang

(OR)

Any suitable example - 1 1/2 marks

29. Syntax:

if <condition>:

Statements - block 1

else:

Statements - block 2

Any suitable Example

- 1 1/2 marks

- 1 1/2 marks

30.

Composition * The value returned by a function may be used as an argument for another function in a nested manner

* This is called composition ← 1/2 marks

* For example, if we wish to take a numeric value or an expression as a input from the user, we take the input string from the user using the function input() and apply eval() function to evaluate its value

← 1/2 marks.

31. Capitalize:

Used to capitalize the first character of the string ← 1/2 marks

Example:

City = "chennai"

Print (City.capitalize())

← 1/2 marks

(OR) Any suitable example. ← 1 marks

Swapcase:

It will change case of every character to its opposite case vice-versa.

Example: Str = "TAMIL NADU"

Print (Str.swapcase())

← 1/2 marks

32. Constructor is the special function that is automatically executed when an object of a class is created

In Python, there is a special function called "init" which act as constructor.

It must begin and end with double

underline ← 1/2 marks.

Destructor:

It is also a special method gets executed automatically when an object exit from scope.

It is just opposite to constructor. In Python

33 >>> Even_list = list(range(2, 11, 2))

>>> print(Even_list)

(OR)
Suitable program
Any Example

3 marks

Part-IV

34) a) Interface:

An Interface is a set of action that an object can do

Implementation:

Carries out the instructions defined in the interface.

Interface Definition & Example

- 2 1/2 marks

Implementation ,, & ,,

- 2 1/2 marks

b) Binary search definition - 2 marks

pseudo code - 2 marks

Any Example - 1 mark

Important points

Binary Search also called Half interval search.

The binary search can be done as divide and Conquer search algorithm.

35) a) Script mode Definition - 1 mark

creating scripts in Python - 1 mark

Saving Python script - 1 mark

Executing python script - 1 mark

Example - 1 mark

Important points:

File → New (or) Ctrl+N

File → Save as (or) Ctrl+S

b) for loop is most comfortable loop.
It is also an entry check loop. The condition is checked in the beginning and the body of the loop is executed if it is only true. Otherwise the loop is not executed.

- 1 marks

Syntax:

```
for counter_variable in sequence:
    Statement_block 1
```

[else:

```
    Statement_block 2 ]
```

- 2 marks

Suitable Example

- 2 marks

36) a) Required arguments

Keyword))

Default))

Variable length))

Definition

Example

- 1 marks

- 2 marks

- 2 marks

b) `X = int(input("Enter first number:"))`

`Y = int(input("Enter second number:"))`

`if x > y:`

`min = x`

`else:`

`min = y`

`while (1):`

`if ((min % x == 0) and (min % y == 0)):`

`print("LCM is", min)`

`break`

`min = min + 1`

(OR)

Any Suitable Program

37) a) Slice is a substring of a main string.

A substring can be taken from the original string by using [] operator and index or subscript values.

Using slice operator, you have to slice one or more substrings from a main string

Syntax: str[start:end]

Any suitable Example

- 2 marks
- 1 mark

- 2 marks

b) append() — add a single element

extend() — add more than one element to an existing list

insert() — include an element desired position

Suitable Example — 2 marks

Syntax — 1 mark

Definition — 2 marks

38) a) Set operations Give Explanation with example

1. Union

3. difference

2. intersection

4. Symmetric difference

3 marks

Definition & Example — 1 mark

b) Defining classes

Accessing class members

Example

Important

Syntax: Object_name . Class_member

Class Class_name :

statement_1

statement_n

Prepared By,

E.RAJKUMAR M.C.A.,

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