Ts12CS   Tenkasi District Common Examinations
Common Half Yearly Examination - December 2022

Standard - 12
COMPUTER SCIENCE

Time Allowed: 3.00 Hours   Maximum Marks: 70

PART - I
15 × 1 = 15

Answer all the questions.
Choose the correct answer and write the option code with answer:

1. The small section of code that are used to perform a particular task is called
   a) Pseudocode   b) Subroutines   c) Modules   d) Files

2. Which function build the abstract data type?
   a) Constructors   b) Data   c) List   d) Tuple

3. Which of the following members of a class can be handled only from within the class?
   a) Public members   b) Private members
   c) Protected members   d) Secured members

4. Which one of the following is not a factor to measure the excution time of an algorithm?
   a) Speed of the machine
   b) Operating system
   c) Programming language used
   d) Selection

5. Which one of the following character is used to give a single line comments in python program?
   a) @   b) #   c) $ d) &

6. Which statement is used to skip the remaining part of the loop and start with the next iteration?
   a) break   b) pass   c) continue   d) null

7. Evaluate the following function and with the output
   x = 14.4
   print (math. floor(x))
   a) 13   b) 14   c) 15   d) 14.3

8. In python, which operator is used to display a string in multiple number of times?
   a) * (multiplication)   b) + (addition)
   c) – (subtraction)   d) / (division)

9. The keys in python dictionary is specified by
   a) ;   b) :   c) +   d) .

10. The procers of creating an object is called as _____.
    a) Initialization   b) Constructor   c) Instantiation   d) Destructor

11. A Tuple is also known as:
    a) Attribute   b) Table   c) Field   d) Row

12. Which is a TCL command in SQL
    a) Alter   b) Grant   c) Truncate   d) Commit

13. A CSV file is also known as :
    a) Random file   b) String file   c) 3D file   d) Flat file

14. Which SQL function returns the number of rows in a table?
    a) SUM ()   b) Max ()   c) CHECK ()   d) Count ()

15. Using Matplotlib from within a python script, which method inside the file will display your plot?
    a) plot ()   b) disp ()   c) clear ()   d) show ()

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PART - II

Answer any six questions. Question Number 24 is compulsory.   6×2=12

16. Write a short note on Namespace (n).
17. What is searching? Write the types.
18. Define operators and operands.
19. Write the syntax of for loop.
20. What is the output of the given python code?
    ```
    >>> a = list (range (2, 11, 2))
    >>> print (a)
    ```
21. What is the purpose of destructor?
22. What is normalization?
23. Write a note on Database Users.
24. Differentiate Compiler and Interpreter.

PART - III

Answer any six questions. Question Number 33 is compulsory.   6×3=18

25. What is constructors and selectors.
26. List the characteristics of an algorithm.
27. Differentiate the function ceil() and floor().
28. What is string concatenation? Give an example.
29. What are the methods are used to connect a database? Give an example.
30. How will you access the list elements using for loop?
31. Give any DDL Commands.
32. Write a SQL statement using DISTINCT keyword.
33. List the types of Visualization in Matplotlib.

PART - IV

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

34. a) Explain with example Pure and Impure function.

    (OR)

    b) Explain the characteristics of an algorithm.

35. a) Explain the scopes for variables with example.

    (OR)

    b) Explain if...else...elif statement with example.

36. a) What is arguments? Explain the types of arguments?

    (OR)

    b) Explain about string operators with example.

37. a) What are the different ways to insert an element in a list. Explain with suitable example.

    (OR)

    b) Explain the different types of data model.

38. a) Write the rules to be followed to format the data in a CSV file?

    (OR)

    b) Write in brief about SQLite and the steps used to use it?

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Tenkasi District Common Examinations

Half Yearly Examination - 2022

Answer key.

XIIth Computer science.

PART-I

1. b) subroutines
2. a) constructors
3. b) Private members.
4. d) selection
5. b) #
6. a) break c) continue
7. b) 14
8. a) * (Multiplication)
9. b) :
10. c) Instantiation.
11. d) row
12. d) commit
13. d) Flat file.
14. d) count ()
15. d) show

PART-II

16. **Namespace:**

Namespaces are containers for mapping names of variables to objects. — 2 Marks

17. **Searching:**

To Search an item in data structure is called as searching — 1 marks

(or)

Searching is used to locate specific data in a list — 1 marks

Types:

1. Linear Search (or) Sequential search
2. Binary search (or) half-interval search. — 1 marks

18. Operators:
Operators are Special Symbols which
represent computations, conditional routching
etc.   — 1marks

Operands:
Values and Variables when used with
Operator are known as operands.   — 1marks

19. Syntax of for loop:
for counter_variable in sequence:
statements - block 1
[else:
statements block 2]   — 2marks

20. Output:
[2,4,6,8,10]   — 2marks

21. Purpose of destructor:
× Destructor is also a Special method
gets executed automatically when an object
exit from the scope   — 1marks
× In python _del_()method is used as
destructor.   — 1marks

22. Normalization:
× Normalization which divides the
data in such a way that repetition
is minimum.   — 2marks
(OR)
* Normalization is an integral part
of RDBMS in order to reduce data redundancy
improve data Integrity.   — 2marks

23. Database Administrators:

*DBA is the one who manages the complete database management system.

*DBA to

Explain Any 2 headings — 2 marks

Application Program users or software developers:

* This user group is involved in developing and designing the parts of DBMS.

End users:

* End users are the one who stores, reterive, update and delete data.

Database designers:

They are responsible for identifying the data to be stored in database for choosing appropriate structures to represent and store the data.

24.

	Compiler	Interpreter
1.	It generates an intermediate code.	It generates machine code.
2.	It reads entire program for compilation	It reads single statement at a time for Interpreter
3.	Error deductions difficult	Error deduction is easy.
4.	Comparatively faster	Comparatively slower
5.	Example: gcc, g++, Borland Turbo C.	Example: Python/ Basic/ Java

Any 3 headings — 3 marks

Part - III

25. Constructors:
    * Constructors are functions that build abstract data type
    * It create an object, bundling together different pieces of informates.

Example:
        city = makecity (name, lat, lon)   — 1½ marks

Selectors:
        * Selectors are functions that reterive information from the data type.
        * Selectors extract individual pieces of information from the object.

Example:
        getname (city)
        getlat (city)
        getlon (city)   — 1½ marks

26.   Characteristics of an algorithm:
        1. Input   7. simplicity
        2. output   8. Unambiguous
        3. finteness   9. feasibility
        4. Definiteness   10. Portable
        5. Effectiveness   11. Independent
        6. correctness

                    (Any six) — 6 × ½ = 3 marks

27.   ceil   Floor

	ceil	Floor
1.	Returns the smallest integer greater than or equal to x	Returns the largest integer lessthan or equal to x
2.	Math. Ceil (x)	Math. Floor (x).

                    2 points — 3 marks

28. * Jolining of two or more strings is
called as Concatenation
     * The + operator is used to concatente
Strings In Python   2 marks
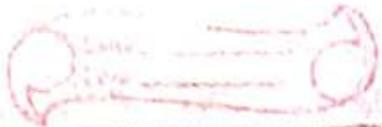
Example:
     >>> "Welcome" + Python
     'Welcome Python'   — 1 marks
     Any Suitable example.

29. Connect a Database:
     * Create a connection using connect()
method and pass the name of the
database file.   — 1 marks

Example:
     import sqlite3
     Connection = sqlite3connect ("academy.db")
     Cursor = Connection.Cursor().   — 2 marks

30. access the list elements using for loop:

     * for loop is used to access all the
elements in a list one by one.
                              — 1 marks
Syntax:
     for index_var in list :
         Print (index_var)   — 1 marks
Example:
     a = [23, 45,67, 78,98]
     for i in a :
         print (a)
     For element in list and print list
items.   — 1 marks

31) **DDL commands:**

Create — To create tables in the database
Alter — Alters the Structure of the database
Drop — Delete tables from database.
truncate — Remove all records from a
table, also release the space occupied
by those records.   — 3 marks

32) SELECT DISTINCT Place from student;
        (OR)
    Any suitable SQL statement.   — 3 marks

    * The Distinct keyword is used to
    alongwith the select command to eliminate
    duplicate rows in the table.

33. * Charts * Line plot   — 3 marks
    * Tables * Scatter plot
    * Graphs * Histogram
    * maps   * Box-plot
    * Info graphic * Bar chart and
    * Dashboards.   * Pie charts

PART-IV

34. **Pure function:**
        * Pure functions are functions which
will give exact result when the same
arguments are passed.
        * It does not cause any side effects
        * The return value of the pure
functions solely depends on its argument passed
        * They do not modify the arguments
which are passed to them
    Example:-
                                    2½ marks
        let square x
        return x * x

Impure Functions:

* Impure functions with or same set of arguments, you might get to different return values

     * Impure function cause side effects to its output

     * the return value of the impure function does not solely depend on its arguments passed.

     * They may modify the arguments which are passed.

Example:

    let a := random()   2½ marks.

    let random():=

      if a>10 then

       return := a

   else

     return := 10

b) Characteristics of an algorithm.
     Refer 3 marks question no (26) answer key.
     Explain the any 6 headings. 5m
                      – 5 marks

35) a) Scope of the variables
Chapter–7 **Local Scope**
   Ref A variable declared inside the function's body or in the local scope is known as local variable – (rules)   1½ marks
   Rules for local scope variables
   Example ① marks.
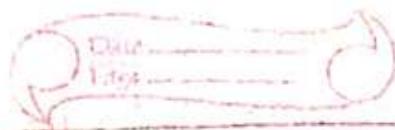
Global Scope:
   A variable, with global scope can be used any where in the program   1½ marks
   Rules for global variables
   Example: 1 marks.

b)   if...else elif Statement:
          * el if clause can be used
instead of else.   — 1 marks (Definition)

Syntax:
       if <condition-1>:
          Statements-block 1
    el if <condition-2>:
          Statement-block 2
    else:
          Statements block n   — 2 marks

Any suitable Example.   — 2 marks

36) a)   * Required arguments
          * Keyword   ))
          * Default   ))
          * Variable length))   — 1 marks
                    Explaination — 2 marks } 3 marks
          Any suitable Example. —

arguments are the values we pass to
the function parameters. — 1 marks

b)   String operators:
          (1) Concatenation (+) }
          (11) Append (+=)   } Definition — 2½ marks
          (111) Repeating (*)   }
                                    Example — 2 marks
          (1v) Slicing []

37) a)   Append () - It is used to add more

elements in a list.

    insert() - The insert() function is used to

insert an element at any position

of list.

    extend () - It is used to add more than

one element to an existing list.   1½ marks

Syntax:

    List.append (elements to be added)   1½ marks

    List.extend ([elements to be added])

    List.insert (Position index, element).

Suitable   2

Any Example   - 1½ marks

b)   Data model:

      * Hierarchical model

      * Relational "   2 marks

      * Network Database "

      * Entity Relationship "

      object "   Explanation - 3 marks

38) a)   1. Rules to be followed to format the data in

a CSV File:

     Important points.

Seperate line, delimited by line break

last record → may or may not of ending break

space should be ignored

CRLF → double quotes, commas   5 points - 5 marks

b)   SqLite:-

Definition   - 1 marks

Advantages.   - 1 marks

Steps to use SqLite. Import SqLite3

     Refer 29th question (3marks) answerkey

               4 steps - 1½ marks

     Definition - 1 marks

     Example - 1½ marks