Tsi12CS

Tenkasi District Common Examinations
First Revision Test - January 2023

Standard 12
COMPUTER SCIENCE

Maximum Marks: 70

Time Allowed: 3.00 Hours

Part - I

15×1=15

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

1) Identify the package manager for python packages, or modulus
   a) Matplotlib   b) PIP   c) Plt.show()   d) Python package

2) Which of the following is called the master table?
   a) sqlite_master   b) sql-master   c) main-master   d) master-main

3) getopt() will return an empty array if there is no error in splitting strings to
   a) argv variable   b) opt variable   c) args variable   d) ifile variable

4) Which of the following mode is used when dealing with non-text files like image or exe files?
   a) Text mode   b) Binary mode   c) xls mode   d) csv mode

5) The command to delete a table including the structure is
   a) DROP   b) DELETE   c) DELETE ALL   d) ALTER TABLE

6) Which of the following is an RDBMS?
   a) Dbase   b) Foxpro   c) Microsoft Access   d) SQ Lite

7) A private variabe is prefixed with
   a) _ a   b) &&   c) # #   d) **

8) Let list 1=[2, 4, 6, 8, 10], then print (List 1[−2]) will result in
   a) 10   b) 8   c) 4   d) 6

9) Which of the following is used as placeholders or replacement fields which get replaced along with format () function?
   a) { }   b) <>   c) ++   d) ^^

10) While defining a function which of the following symbol is used?
    a) ; (semicolon)   b) . (dot)   c) : (colon)   d) $ (dollar)

11) Which statement is generally used as a placeholder?
    a) continue   b) break   c) pass   d) goto

12) Which of the following is not a token?
    a) Interpreter   b) Identifiers   c) Keyword   d) Operators

13) From the following sorting algorithms which has the lowest worst case complexity?
    a) Bubble sort   b) Quick sort   c) Merge sort   d) Selection sort

14) Which scope refers to variables defined in current function?
    a) Local scope   b) Global scope   c) Module scope   d) Function scope

15) The datatype whose representation is unknown are called
    a) Built in data type   b) Derived data type
    c) Concrete data type   d) Abstract data type

Part - II

Answer any six questions. Q.No. 24 is compulsory:

6×2=12

16) Define function with respect to programming language.
17) What are the characteristics of modules?
18) Write a note on range() in loop.
19) What is string?
20) Write the syntax to create list with suitable example in python.
21) Write categories of SQL commands.
22) What is the theoretical difference between scripting language and other programming language?
23) List the types of visualization in Matplotlib.
24) What is the use of next() function?

Tsi12CS

2

Part - III

6×3=18

Answer any six questions. Q.No.33 is compulsory:

25) Define Abstraction. What is Abstract data type?
26) Write a note on Dynamic programming.
27) Explain Ternary operator with example.
28) What are advantages of Tuples over a list.
29) Write a note on types of DBMS users.
30) Write short notes on TCL commands in SQL.
31) What are the applications of scripting languages?
32) Differentiate python and C++.
33) What will be the output of the given python program?

```
a = "computer"
b = "science"
x = a[:4]+b[len(b)-3:]
print (x)      [len(b) - 3: ]
```

Part - IV

5×5=25

Answer all the questions:

34) a) What is Binary search? Discuss with example.

(OR)

b) Explain data types in python with suitable example.

35) a) Explain the following built in function:
(i) id() (ii) chr() (iii) round() (iv) type() (v) pow()

(OR)

b) Write the output of the following python programs.

```
i)  j = 15
    while (j>=10):
      print (j, end='\t')
      j = j-1
    else:
      print("\n End of the loop")
ii)  i = 1
    while (i<=6):
      for j in range (1, i):
        print (j, end='\t')
        print (end='\n')
      i+=1
```

36) a) 1) What is slicing?
2) What is the output for the following commands?
```
str = "Thinking with python"
i)  print (str[::3])
ii)  print (str[::-4])
iii) print (str[9:13])
```

(OR)

b) What is set in python? Explain the following set operations with suitable example.
(i) Union (ii) Intersection (iii) Difference

37) a) Differentiate DBMS and RDBMS.

(OR)

b) Explain the types of data model.

38) a) Write any five key difference between Histogram and Bar Graph.

(OR)

b) Explain each word of the following command.
```
python < filename.py > - <i> <c++ filename without cpp extension>
```

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Answer Key.

PART-I

1. b) PIP
2. a) sqlite_Master
3. c) args variable.
4. b) Binary mode.
5. a) DROP
6. d) SQLite.
7. a) —
8. b) 8
9. a) { }
10. c) : (colon)
11. c) pass
12. a) Interpreter
13. d) selection sort   c) merge sort
14. a) local Scope.
15. d) Abstract Datatype.

PART-II

16. * A function is a unit of code that is often designed with in a greater code structure. (1 marks)
* A function contains a set of code that works on many kinds of inputs, like variants, expressions and produces a concrete output. (1 marks)

17. 1. Modules contain instructions, processing logic and data.
2. Modules can be separately compiled and stored in a library.

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3. Modules can be included in a program

4. Module segments can be used by invoking a name and some parameters

5. Module segments can be used by other modules.

Any two points — (2 marks)

18. range() generates a list of values starting from start till stop - 1 (1 marks)

(or)

for loop uses the range() function in the sequence to specify the initial, final and increment values. (1 marks)

Syntax:

range (start, stop, [step]) (1 marks)

19. (i) string is a datatype in python, which is used to handle array of characters (1 marks)

(ii) string is enclosed within single, double or even triple quotes (1 marks)

20. or   Syntax:

Variable = [element-1, element-2, element-3 ....
            element-n] (1 marks)
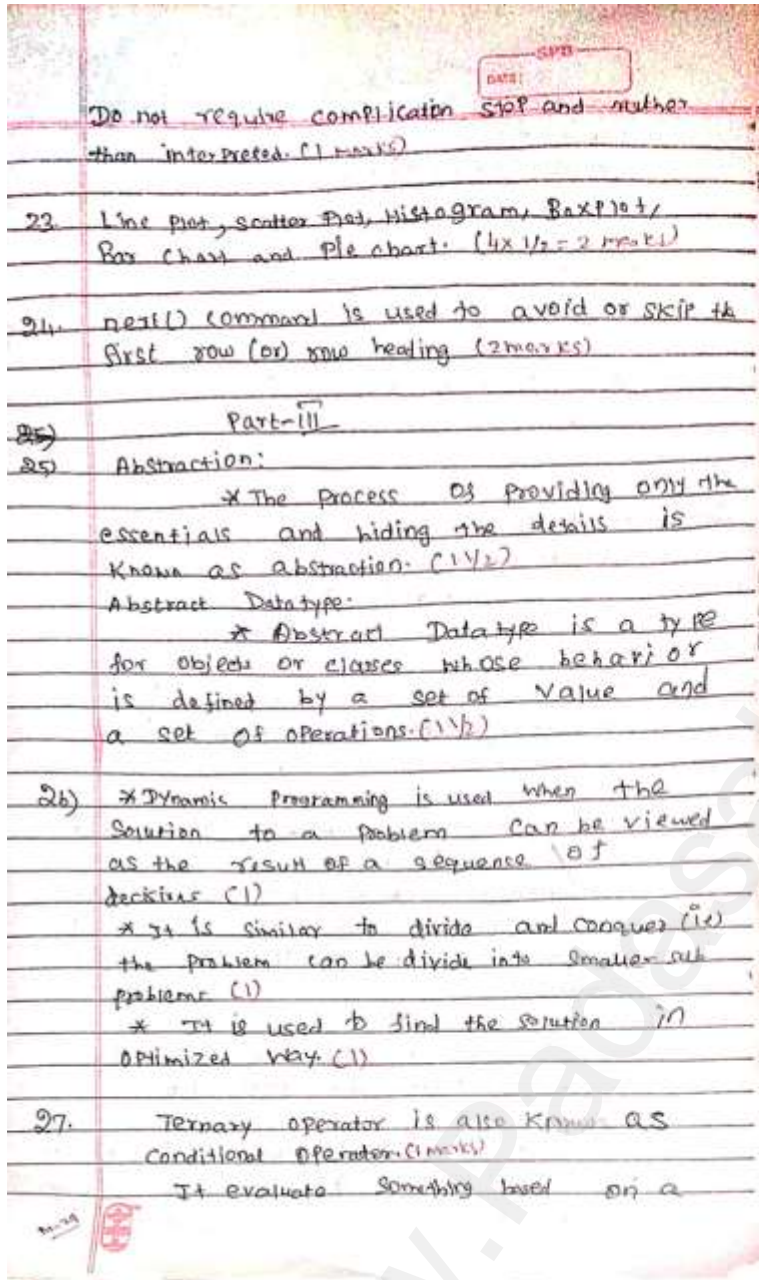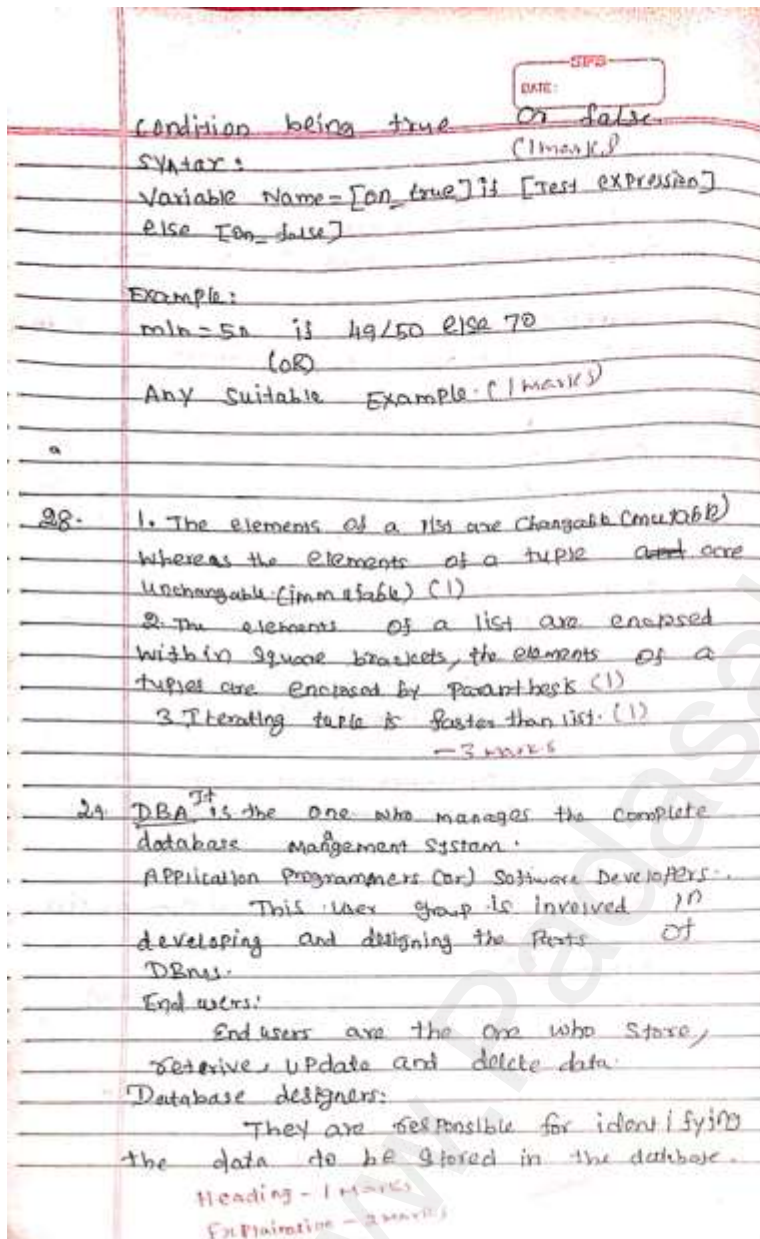
Example:

Marks = [10, 23, 41, 75] (1 marks)

(OR) Any Example

21.   DDL, DML, DCL, TCL, DQL — 2 marks

22.   A scripting language requires an interpreter while programming languages require a compiler. (1 marks)

Do not require complication stop and nuther than interpreted. (1 mark)

23. Line plot, scatter plot, Histogram, Boxplot, Bar chart and Pie chart. (4x 1/2 = 2 marks)

24. next() command is used to avoid or skip the first row (or) row heading (2marks)

Part-III

25) Abstraction:
    * The Process of providing only the essentials and hiding the details is known as abstraction. (1½)

Abstract Datatype:
    * Abstract Datatype is a type for objects or classes whose behaviour is defined by a set of value and a set of operations. (1½)

26) * Dynamic Programming is used when the Solution to a problem can be viewed as the result of a sequence of decisions (1)
    * It is similar to divide and conquer (ie) the problem can be divide into smaller sub problems (1)
    * It is used to find the solution in optimized way. (1)

27. Ternary operator is also known as conditional operator. (1 mark)
    It evaluate something based on a

condition being true or false.

SYNTAX: (1 mark)

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

Example:
min = 50 if 49/50 else 70
(OR)
Any Suitable Example. (1 mark)

28. 1. The elements of a list are changable (mutable)
whereas the elements of a tuple are
unchangable (immutable) (1)
2. The elements of a list are enclosed
within square brackets, the elements of a
tuples are enclosed by parenthesis (1)
3. Iterating tuple is faster than list. (1)
— 3 marks

24. DBA: It is the one who manages the complete
database management system.
Application Programmers (or) Software Developers.
      This user group is involved in
developing and designing the parts of
DBMS.
End users:
      End users are the one who store,
retrieve, update and delete data.
Database designers:
      They are responsible for identifying
the data to be stored in the database.
Heading – 1 marks
Explaination – 2 marks

30) Commit : Save any transcation Permanently
Roll back : restore the database to last
Commit state
Save Point : Temporarily save transaction.
(1 mark)

31) 1. To automate Certain tasks in a Program
2. Extracting Information from a dataset.
3. Less code intensive as compared to traditional programming language.
4. can bring new Functions to applications and glue complex systems together.
Any 3 Points — 3 marks

32)

Python	C++
1. Python is a dynamic typed language	C++ is Compiled Statically typed language.
2. Datatype is not required while declaring variable	Datatype is required while declaring Variable.
3. It can act both as Scripting and General Purpose language.	It is general purpose language.
4. Python is typically an interpreter language.	C++ is typically a "compiled" language.

Any 3 Points — 3 marks

33. Compace. — 3 marks

Part - IV

34) a) Binary search also called half-interval Search algorithm.
It finds the position of a search element with in sorted array.
The binary search algorithm can be done as divide — and — conquer search
(2 marks)

algorithm and executes in logarthmic time

Any valid exa

Definition - 2marks

Any Valid example — 3 marks

b) Built in or Fundamental Datatypes:
1. Number
2. string
3. Boolean
4. tuples
5. lists (1 Marks)
   Explaination (2marks)

35) a)

Function	Description
id()	Return the "identity" Of the object
Chr()	Return the unicode Character for the given ASCII value
round()	Returns the nearest integer to its input.
type()	Returns the type of Object for the given single object.
Pow()	returns the computation of (a**b)

— 5 marks

b) i) 15   14   13   12   11   10   2½ Marks
         End of the loop

ii)   1
    1 2
    1 2 3
    1 2 3 4
    1 2 3 4 5   2½ marks

Thinking with Python

36) a) i) Since is a substring of a main string.
A substring can be taken from the original
string by using [] operator and index or subscript
values.   2 marks

(ii) (i) Tnnwhyp   - 1 marks
(ii) nytgn   - 1 "
(iii) with   - 1 "

b) *A set is a mutable and an unordered
collection of elements without duplicates.
(i) union: (1)   — 1 marks
It includes all elements from two or
more sets.

(ii) Intersection - It includes the common elements
in two sets.

(iii) Difference - It includes all elements that
are in first set but not in the second
set.
Set operation Definition & Example - 4 marks

37) a)

Basic of comparison	DBMS	RDBMS
Expansion	Database management system	Relational Database management system
Data storage	Navigational model	Relational Model
Data redundancy	Exhibit	Not present
Normalization	Not performed	Performed
Data access	Consumes more time	Faster
Key & indexes	Does not use	keys are set
Distributed database	Not supported	supported
Example	DBase, fox to	SQL server, oracle, mysql
Transaction management	Inefficient, error prone & insecure	Efficient & secure

1 mark each

Any five points - 5 marks

Key points

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b) Hierarchical model - one to many relationship

Relational ">"

A child must Network Database ">" - only one parent node
parent node. Entity Relationship ">"

object ">" Heading - 1 marks

Explanation - 4 marks

38) a)

Histogram	Bar graph
1. It refers to graphical representation that displays data by way of bars to show the frequency of numerical data.	A bar graph is a pictorial representation of data that uses bars to compare different categories of data.
2. The frequency distribution - Continuous variables	The frequency distribution - Discrete variables
3. It presents numerical data	It represents categorial data.
4. Rearrange blocks highest to lower	sequence of classes
5. Histogram - range of data	individual entities.

— 5 marks

b) Python - To execute the Python program from command line. (2 marks)

filename.py - Name of the Python program to execute (1 marks)

-i - input mode (1 marks)

C++ filename - name of C++ file

without CPP extension to be compiled & executed. (1 marks)

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