

Muthuvarar MUKKulathore Higher Secondary SchoolHalf yearly Examination-2024 Computer Science - XII std

Time : 3:00 Hrs

Marks : 70

PART - I 15x1 = 15

I. Answer all the Questions

1. a) Arguments
2. d) Abstract datatype
3. c) Access control
4. c) Algorithm
5. d) Ctrl+N
6. c) for
7. b) 14
8. d) third argument of slice operation
9. d) {1, 3, 6, 9}
10. b).
11. a) E F Codd
12. b) Drop Table
13. d) Carriage Return and Line Feed
14. a) Max()
15. d) Matplotlib

PART - II 6x2 = 12

16) what is selector?

* functions that retrieve information from the data type.

* Extract individual pieces of information from the object

17) what are the characteristics of modules?

Contains instruction, processing logic and data. Can be separately compiled. Can be included in a program. Can be used by invoking a name and parameters. Can be used by other modules

18) what is a literal?

Explain the types of literals?

Raw data given in a variable or constant.

1. Numeric Literals
2. String Literals
3. Boolean Literals

19) Write note on break statement?

Terminates the loop containing it.

Control of the program flows to statement immediately after the body of the loop

Syntax: break

20) what is the use of `replace()` in python? write the general format of `replace()`

python does not support strings modification

provides a function `replace()` to temporarily change all occurrences of a particular character

The changes does not affect the original string

format: `replace("char1", "char2")`

21) What is data consistency?

Data values are the same at all instances of a database

On live data, maintaining consistency is a challenge.

DBMS handles it by itself

22) Differentiate Unique and Primary Key constraint.

Unique

no two rows have the same value

Can be applied only to Not null fields

Primary Key

declares a field as a primary key to uniquely identify a record

primary key fields must have Not Null Constraint

23) Mention the two ways to read a csv file using python

1. Use the csv module's reader function
2. Use the Dict Reader class

24) write the syntax of `getopt.getopt` method

`<opts>, <args> = getopt.getopt(
getopt(argv, options, [orig_options])`

PART-III

25) Mention the characteristics of Interface.

- * enable an object to be created and operated properly
- * Object's attributes and behaviour is controlled by sending functions to the object.

26) Define Local scope with an example.

- * refers to variables defined in current function.
- * will always look up for a variable name in its local scope
- * Only if it does not find it there, outer scopes are checked.

Example:

```
Disp():
```

```
    a:=7
```

```
    print a
```

27) What is an Algorithm?
List any three characteristics of an algorithm.

Algorithm:

- * finite set of instructions to accomplish a task
- * step-by-step procedure for solving a problem
- * Can be implemented in any suitable programming language.

Characteristics:

1. Input 2. Output 3. Finiteness
4. Definiteness 5. Effectiveness
6. Correctness 7. Simplicity
8. Unambiguous 9. Feasibility
10. Portable 11. Independent.

28) What are the advantages of Tuples over a list?

- * elements of a list are changeable (mutable), tuples are immutable.
- * list are enclosed within square brackets
- * tuples are enclosed by parenthesis. Iterating tuples is faster

29) What are class members? How do you define it?

- * variables defined inside a class - class variable
- functions → called as Methods

* together known as members of the class.

* should be accessed through objects

* can be defined anywhere

Syntax:

```
class class-name:
    statement-1
    statement-2
    .....
    statement-n
```

30) write a SQL statement to modify the student table structure by adding a new field.

Syntax:

```
Alter table <table-name>
Add <column name> <data type> <size>;
```

Example:

```
Alter table student add (age integer(3))
```

31) What is the difference between the write modes and append mode?

Write

creates a new file

overwrites existing file

Append

used to add data at the end of the file

creates a new one if no file available

- 32) Write any three uses of data visualization.
- * help users to analyse and interpret the data easily
 - * makes complex data understandable and usable
 - * helps to show relationship in the data for one or more variables

- 33) what will be the output of the given python program?

Output:

Comprice

part - IV

- 34) what are called parameters

a) and write a note on

- Parameter without Type
- Parameter with Type

Variables in a function definition - Parameters

Arguments are values passed into a function

Parameter without Type:

(requires: $b \geq 0$)

(returns: a to the power of b)

let rec pow a b :=

if b = 0 then 1

else a * pow a (b-1)

Parameter with Type:

(requires: $b \geq 0$)

(returns: a to the power of b)

let rec pow (a: int)

(b: int): int :=

if b = 0 then 1

else a * pow b (a-1)

- 34 b) Discuss about Linear Search algorithm

* Called as sequential search

* method for finding a particular value in a list

* checks the elements in sequence

* list need not be ordered

pseudo code and Example.

- 35 a) Different types of operators in python

Special symbols which represent computations, Conditional matching etc...

Value of operator used is called operand.

Arithmetic operators

Relational or Comparative Operators

Logical operators

Assignment operators

Conditional or Ternary Operators

35) b) Explain 'continue' statement with examples

used to skip remaining part of a loop and start with next iteration

Syntax: continue

Working of continue statement:
flow chart

Example with output.

36) a) Explain the following built-in functions.

a) id() - Returns the 'identity' of an object.

Syntax: id(object)

b) chr() - Returns the Unicode character for the given ASCII value

Syntax: chr(i)

c) round() - Returns the nearest integer

Syntax: round(number, [ndigits])

d) type() - Returns the type of object for the given single object

Syntax: type(object)

e) pow() - Returns the computation of a^b

Syntax: pow(a, b)

36) b) Explain the different types of relationship mapping.

One-to-One Relationship:
One entity is related with only one other entity

Diagram & Example

One-to-Many Relationship:
One entity is related to many other entities

Diagram & Example

Many-to-One Relationship:
many entities related with only one in the other entity.

Diagram & Example

Many-to-Many Relationship:
multiple records are associated with multiple records in another table.

Diagram & Example.

37) a) Differentiate Excel file and CSV file.

Excel	CSV
binary file that holds info about all the worksheets including both content and formatting	plain text format with a series of values separated by commas

can be read by applications especially written

can be opened with any text editor

Saves files into its own proprietary format .xls or .xlsx

Saving tabular information into a delimited text with .csv extension

Consumes more memory while importing data

can be much faster and consumes less memory

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

`Insert()` helps you to include an element at your desired position

Syntax:

`List.insert(position index, element)`

write Example with output

`append()`

- used to add a single element in a list at the end.

Syntax:

`List.append(element to be added)`

write Example with output.

`extend()`

- used to add more than one element to an existing list.

Syntax: `List.extend(element to be added)`

write Example with output.

38a) write a python program to execute the following C++ coding

```
import sys, os, getopt
def main(argv):
    cpp_file = ""
    exe_file = ""
    opts, args = getopt.getopt(argv, "i:", ["ifile ="])
    for o, a in opts:
        if o in ("-i", "--ifile"):
            cpp_file = a + '.cpp'
            exe_file = a + '.exe'
            run(cpp_file, exe_file)
```

```
def run(cpp_file, exe_file):
```

```
    print("Compiling" + cpp_file)
    os.system('g++' + cpp_file + '-o' + exe_file)
```

```
    print("Running" + exe_file)
```

```
    print("-----")
```

```
    print
```

```
    os.system(exe_file)
```

```
    print
```

```
if __name__ == '__main__':
    main(sys.argv[1:])
```

Output :


```
-----
WELCOME
-----
```

38) b) What are the key differences between Histogram and Bar graph?

Histogram	Bar graph
refers to a graphical representation.	pictorial representation
uses bars to show the frequency of numerical data	uses bars to compare different categories of data
represents the frequency distribution of continuous variables	a diagrammatic comparison of discrete variables
presents numerical data	shows categorical data
numbers are categorised together to represent ranges of data	items are considered as individual entities
width of rectangular blocks may or may not be same	width of the bars in a bar graph is always same.

G. Mathan - PG Asst in CS

MM Higher Secondary School
Thirunagar


P. ANAND, M.A., M.Ed., DCA.,
HEAD MASTER
Muthuvar Mukkulathore Hr. Sec. School
Thirunagar, MADURAI - 625 006