

XII PUBLIC EXPECTED QUESTIONS LIST

SUBJECT: COMPUTER SCIENCE

CHAPTER – 1

FUNCTION

2 MARKS & 3 MARKS

1. Define Subroutines
2. What is meant by Function Specification?
3. Define Arguments or Parameters
4. Write the inference you get from $X := (78)$.
5. Define Recursive Function
6. What is the difference between Interface and Implementation?
7. Why strlen is a pure function?
8. What is the side – effects of Impure Function?
9. What happens if you modify a variable outside the function? Give an example?
10. What are the differences between Pure and Impure Function?

CHAPTER – 2

DATA ABSTRACTION

2 MARKS & 3 MARKS

11. Differentiate Constructors and Selectors?
12. Define Pair
13. Define List
14. Define Tuple
15. Define Instance or Define Object
16. Define Class
17. Differentiate Concrete Data type and Abstract Data type?
18. Which strategy is used for program designing? Define that strategy?
19. What are the different ways to access the elements of a list? Give example?

CHAPTER – 3

SCOPING

2 MARKS & 3 MARKS

20. Why scope should be used for variable? State Reason?
21. Define Namespaces
22. How python represents the private and protected access specifiers?
23. Define Life Time
24. What is LEGB rule?
25. Define Global Scope
26. What is meant by Enclosed Scope?
27. What is Built – in Scope?
28. Define Module
29. What is meant by Modular Programming?
30. Define Data Encapsulation
31. Why Access Control is required?

CHAPTER – 4

ALGORITHMIC STRATEGIES

2 MARKS & 3 MARKS

32. What are the two different phases of an Algorithm?
33. What is Insertion sort?

34. What is Sorting?
35. Discuss about Algorithmic complexity and its types.
36. What are the factors that influence time and space complexity.
37. Write a note on Asymptotic notation.
38. What is meant by Algorithm Strategy?
39. Define Algorithmic Solution
40. State Algorithm vs Program
41. What are the two components of Space Complexity?
42. Write the Steps to do Dynamic Programming?
43. Define Memoization or Define Memoisation
44. Write the Fibonacci Series Iterative Algorithm with Dynamic Programming Approach?

**CHAPTER – 5
PYTHON – VARIABLES AND OPERATORS
2 MARKS & 3 MARKS**

45. Write short notes on Tokens.
46. What are the different operators that can be used in Python ?
47. What is a literal? Explain the types of literals ?
48. Write short notes on Exponent data?
49. What are the assignment operators that can be used in Python? Or What are the Compound Operators in Python?
50. Write short notes on Escape sequences with examples.
51. What are string literals? Explain.
52. What are the Key Features of Python?
53. What are Comments in Python?
54. What is Indentation?
55. Define Identifiers and its Rules?
56. What are Keywords in Python?
57. Define Assignment Operator
58. Define Delimiters
59. What are Numeric Literals?
60. What are String Literals?
61. Define Boolean Literals
62. List some Escape Sequences in Python?
63. Define the Following Data Types
 - a) Integer
 - b) Floating Point
 - c) Boolean

**CHAPTER – 6
CONTROL STRUCTURES
2 MARKS & 3 MARKS**

64. Define Control Structure or Control Statement
65. Write the Syntax with example for If – Else?
66. Define If – Else Statement
67. Using if..else..elif statement write a suitable program to display largest of 3 numbers.
68. Define Sequential Statement
69. What is Branching Statement or Alternative Statement?
70. Define Simple If Statement
71. Write the Syntax with example for Simple – If?
72. Write the alternate method for If – Else?
73. What is Iteration Statements or Looping Statements?
74. Write a Python program to illustrate the use of while loop - to print all numbers from 10 to 15?
75. Write a Python program to illustrate the use of while loop - with else part?

76. Write a Python program to illustrate the use of for loop - to print single digit even number?
77. Write a Python program to illustrate the use of for loop - to print single digit even number with else part?
78. Write a Python program to calculate the sum of numbers 1 to 100?
79. Write a Python program to illustrate the use of string in range() of for loop?
80. Define Nested Loop Structure
81. Write a Python program to illustrate the use nested loop -for within while loop?
82. Define Pass Statement
83. Write a Python Program to illustrate the use of pass statement?
84. Write a Python Program to illustrate the use of pass statement in for Loop?

**CHAPTER – 7
PYTHON FUNCTIONS
2 MARKS & 3 MARKS**

85. What are the Advantages of Function?
86. What is meant by scope of variable? Mention its types.
87. What is the base condition in Recursive Function?
88. How to set the limit for recursive function with example?
89. What happens when we modify Global Variable inside the function?
90. Write a python program to check whether the given year is leap year or not?
91. What is Composition in Functions?
92. How the Recursive Function Works?
93. What are the things that need to be noted when defining Functions?
94. Write the Syntax for User – Defined Function?
95. Define Block
96. What is meant by Nested Block?
97. What are the Advantages of User – Defined Function?
98. How to pass the parameters in Functions?
99. Define Parameters and Arguments
100. Define Return Statement
101. Write the Syntax for Return Statement with example?
102. Define abs() function with syntax and example
103. Define ord() function with syntax and example
104. Define chr() function with syntax and example
105. Define bin() function with syntax and example
106. Define type() function with syntax and example
107. Define id() function with syntax and example
108. Define min() function with syntax and example
109. Define max() function with syntax and example
110. Define sum() function with syntax and example
111. Define format() function with syntax and example
112. Define round() function with syntax and example
113. Define pow() function with syntax and example
114. Define sqrt() function with syntax and example

**CHAPTER – 8
STRINGS AND STRING MANIPULATION
2 MARKS & 3 MARKS**

115. Do you modify a string in Python?
116. What is slicing?
117. Define the following Built – in String Functions: a) len() b) capitalize()
118. Define the following Built – in String Functions: a) title() b) swapcase()

119. Define the following Built – in String Functions: a) ord() b) chr() c) count()
120. Define format() Function with Example
121. How to create Strings?
122. Define Subscript and its types
123. Write a Program to access each character with its positive subscript of a giving string
124. Write Program to access each character with its negative subscript of a giving string
125. Write the General format of replace() function with example?
126. Write the Syntax and Example for String Formatting?
127. List some String Formatting Characters with Usage?
128. Define the center() function in String Functions
129. Define the find() function in String Functions
130. Define the following Built – in String Functions: a) isalnum() b) isalpha() c) isdigit()
131. Define the following Built – in String Functions: a) isupper() b) islower()
132. Define the following Built – in String Functions: a) upper() b) lower()
133. Define Membership Operators
134. Write a Python Program to check whether the given string is palindrome or not
135. Write a Python Program to display the following pattern
*
* *
* * *
* * * *
* * * * *
136. Write a Python Program to display the number of vowels and consonants in the given string
137. Write a Python Program to create an Abecedarian series. (Abecedarian refers list of elements appear in alphabetical order)
138. Write a Python Program that accept a string from the user and display the same after removing vowels from it
139. Write a Python Program that count the occurrences of a character in a string

**CHAPTER – 9
LISTS, TUPLES, SETS AND DICTIONARY
2 MARKS & 3 MARKS**

140. How will you access the list elements in reverse order?
141. Differentiate del with remove() function of List.
142. What is set in Python?
143. Write a shot note about sort().
144. Explain the difference between del and clear() in dictionary with an example.
145. What is the difference between the List and Dictionary?
146. How to create a list in the Python with Example?
147. Define Nested List
148. How to Access all the elements in the List?
149. Define Reverse Indexing
150. What is the use of len() function in Python?
151. Define pop() function in List?
152. Define List Comprehension
153. Define the following list functions: a) copy() b) count()
154. Define the following list functions: a) index() b) reverse()
155. Define the following list functions: a) max() b) min() c) sum()
156. Write a python program that creates a list of numbers from 1 to 20 that are divisible by 4
157. Write a python program that creates a list of numbers from 1 to 20 that are divisible by 2
158. Write a python program that creates a list of numbers from 1 to 10 that are divisible by 4
159. Write a python program that creates a list of numbers from 1 to 10 that are divisible by 2

160. Write a python program to define a list of countries that are a member of BRICS. Check whether a county is member of BRICS or not
161. Write a python program to create a list of numbers in the range 1 to 10. Then delete all the even numbers from the list and print the final list.
162. How to Create Tuples?
163. How to Create Tuples using tuple() function?
164. Define Singleton Tuple
165. How to Update the Tuple? Give example?
166. How to Delete the Tuple? Give example?
167. Define Tuple Assignment
168. How to return the multiple values in the tuple?
169. Define Nested Tuple
170. Write a python program to swap two values using tuple assignment
171. Write a python program that has a list of positive and negative numbers. Create a new tuple that has only positive numbers from the list
172. How to create sets?
173. How to create sets using List or Tuple?
174. Define Dictionary
175. Write the Syntax for Dictionary?
176. How to create a Dictionary?
177. Define Dictionary Comprehension

**CHAPTER – 10
PYTHON CLASSES AND OBJECTS
2 MARKS & 3 MARKS**

178. Write the Syntax of Class in Python?
179. How to Create Class Objects in Python? Or Define Class Instantiation?
180. How will you create Constructor in Python?
181. Write a class with two private class variables and print the sum using a method.
182. How to Access Class Member in Python?
183. Define Python Class Function or Define Class Method
184. Write a Python Program to check and print if the given number is odd or even using class
185. Write a Python Program to find total and average marks using class
186. Differentiate Private and Public Data Members?

**CHAPTER – 11
DATABASE CONCEPTS
2 MARKS & 3 MARKS**

187. List the example of DBMS?
188. List the example of RDBMS?
189. What is the difference between Network and Hierarchical Data Model?
190. What is Data Consistency?
191. Define Normalization
192. What are the differences between Select and Project command?
193. What is the role of DBA?
194. Explain Cartesian product with a suitable example?
195. Write a note on different types of DBMS users.
196. Define Database
197. Define DBMS
198. Define RDBMS
199. Define the following Terms: a) Record b) Field c) Table
200. Define Data Model

201. What is Relational Algebra?

**CHAPTER – 12
STRUCTURED QUERY LANGUAGE (SQL)
2 MARKS & 3 MARKS**

202. Write a query that selects all students whose age is less than 18 in order wise.
203. Write the difference between table constraint and column constraint?
204. Which component of SQL lets insert values in tables and which lets to create a table?
205. What is the difference between SQL and MySQL?
206. What is a constraint? Write short note on Primary key constraint.
207. Write a SQL statement to modify the student table structure by adding a new field.
208. Write any three DDL commands.
209. Write the use of Savepoint command with an example
210. Define SQL
211. What is the role of SQL in RDBMS?
212. How to Create Database?
213. Define TRUNCATE Command
214. Define DROP TABLE Command
215. Differentiate DELETE, TRUNCATE, and DROP Statement?
216. What is BETWEEN and NOT BETWEEN Keywords?
217. What is IN and NOT IN Keywords?
218. Define HAVING clause
219. Define COMMIT command
220. Define ROLLBACK command

**CHAPTER – 13
PYTHON AND CSV FILES
2 MARKS & 3 MARKS**

221. Mention the two ways to read a CSV file using Python.
222. What is use of next() function?
223. How will you sort more than one column from a csv file? Give an example statement.
224. Write a note on open() method? What is the difference between the two methods?
225. Write a python program to modify an existing file?
226. Write a Python program to read a CSV file with default delimiter comma (,)
227. What is the Purpose of CSV file?
228. Define close() method
229. Write the Syntax and explain csv.reader() method?
230. How to create a CSV file with default delimiter comma?
231. What is meant by dialect?
232. How to create a CSV file with Custom Delimiters?
233. What is the difference between sorted() and sort() method?
234. Define CSV.writer() method
235. Write the Syntax and explain csv.writer() method?
236. Explain about the writerow() method and writerows() method?
237. Define Appending a Row

**CHAPTER – 14
IMPORTING C++ PROGRAMS IN PYTHON
2 MARKS & 3 MARKS**

238. What is the difference between Compiler and Interpreter?
239. Write the expansion of (i) SWIG (ii) MinGW

- 240. What is the use of modules?
- 241. What is the use of cd command. Give an example
- 242. What are the Applications of Scripting Language?
- 243. Define MinGW Interface
- 244. Define Scripting Language
- 245. What are the commonly used interfaces for importing C++ program into Python?
- 246. How to execute C++ program through Python?
- 247. What is the Syntax to execute the Python Program?
- 248. Define Python's OS Module
- 249. Define Python's getopt Module

**CHAPTER – 15
DATA MANIPULATION THROUGH SQL
2 MARKS & 3 MARKS**

- 250. Mention the users who use the Database.
- 251. Which method is used to connect a database? Give an example.
- 252. What is the advantage of declaring a column as "INTEGER PRIMARY KEY"?
- 253. Write the command to populate record in a table. Give an example.
- 254. Which method is used to fetch all rows from the database table?
- 255. Define SQLite. What is its advantage?
- 256. How to create a Database using SQLite?
- 257. How to display a record using fetchone() function
- 258. How to display all records using fetchone() function
- 259. How to display all records using fetchmany() function
- 260. Write a Python Program to display the content of tuples in newline without using loops
- 261. Define SQLite Master

**CHAPTER – 16
DATA VISUALIZATION USING PYPLOT: LINE CHART, PIE CHART, AND BAR CHART
2 MARKS & 3 MARKS**

- 262. What are the types of Visualizations in Matplotlib?
- 263. Define Scatter Plot
- 264. Define Box Plot
- 265. Define Line Chart
- 266. Define Bar Chart
- 267. Define Pie Chart

**CHAPTER – 1
FUNCTION
5 Marks**

- 268. Explain with example Pure and impure functions.
- 269. Explain with an example interface and implementation.

**CHAPTER – 2
DATA ABSTRACTION
5 MARKS**

- 270. How will you facilitate data abstraction? Explain it with suitable example
- 271. How will you access the multi-item? Explain with example.

**CHAPTER – 3
SCOPING**

5 MARKS

272. Write any Five Characteristics of Modules.
273. Write any five benefits in using modular programming.

**CHAPTER – 4
ALGORITHMIC STRATEGIES**

5 MARKS

274. Explain the Characteristics of an Algorithm?
275. Explain the concept of Dynamic programming with suitable example.

**CHAPTER – 5
PYTHON – VARIABLES AND OPERATORS**

5 MARKS

276. Describe in detail the procedure Script mode programming.

**CHAPTER – 6
CONTROL STRUCTURES**

5 MARKS

277. Explain the While Loop with Example?
278. Write a detail note on if..else..elif statement with suitable example.

**CHAPTER – 7
PYTHON FUNCTIONS**

5 MARKS

279. Explain the different types of function with an example.
280. Explain the different types of function arguments with an example.
281. Explain recursive function with an example.

**CHAPTER – 8
STRINGS AND STRING MANIPULATION**

5 MARKS

282. Explain about string operators in python with suitable example.

**CHAPTER – 9
LISTS, TUPLES, SETS AND DICTIONARY**

5 MARKS

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

**CHAPTER – 10
PYTHON CLASSES AND OBJECTS**

5 MARKS

284. Explain about constructor and destructor with suitable example?

**CHAPTER – 11
DATABASE CONCEPTS**

5 MARKS

285. What are the Components of DBMS?
286. Explain the different types of data model.
287. Explain the different operators in Relational algebra with suitable examples.

**CHAPTER – 12
STRUCTURED QUERY LANGUAGE (SQL)
5 MARKS**

288. Consider the following employee table. Write SQL commands for the qtns.(i) to (v).

EMP CODE	NAME	DESIG	PAY	ALLO WANCE
S1001	Hariharan	Supervisor	29000	12000
P1002	Shaji	Operator	10000	5500
P1003	Prasad	Operator	12000	6500
C1004	Manjima	Clerk	8000	4500
M1005	Ratheesh	Mechanic	20000	7000

- (i) To display the details of all employees in descending order of pay.
 - (ii) To display all employees whose allowance is between 5000 and 7000.
 - (iii) To remove the employees who are mechanic.
 - (iv) To add a new row.
 - (v) To display the details of all employees who are operators.
289. What are the components of SQL? Write the commands in each.

**CHAPTER – 13
PYTHON AND CSV FILES
5 MARKS**

- 290. Tabulate the different mode with its meaning.
- 291. Write the different methods to read a File in Python.
- 292. Write a Python program to write a CSV File with custom quotes.
- 293. Write the rules to be followed to format the data in a CSV file.

**CHAPTER – 14
IMPORTING C++ PROGRAMS IN PYTHON
5 MARKS**

- 294. Write any 5 features of Python.
- 295. What is the purpose of sys,os,getopt module in Python. Explain
- 296. Write a Python program to execute the following c++ coding

```
#include <iostream>
using namespace std;
int main()
{ cout<<"WELCOME";
return(0);
}
```

The above C++ program is saved in a file welcome.cpp

**CHAPTER – 15
DATA MANIPULATION THROUGH SQL
5 MARKS**

- 297. Explain about the Aggregate Functions in SQL?
- 298. Write in brief about SQLite and the steps used to use it.
- 299. Write a Python script to create a table called ITEM with following specification.

Add one record to the table.
Name of the database :- ABC
Name of the table :- Item
Column name and specification :-

Icode	:-	integer and act as primary key
-------	----	--------------------------------

Item Name	:-	Character with length 25
Rate	:-	Integer
Record to be added	:-	1008, Monitor,15000

300. Consider the following table Supplier and item .Write a python script for (i) to (ii)

SUPPLIER				
Suppno	Name	City	Icode	SuppQty
S001	Prasad	Delhi	1008	100
S002	Anu	Bangalore	1010	200
S003	Shahid	Bangalore	1008	175
S004	Akila	Hydrabad	1005	195
S005	Girish	Hydrabad	1003	25
S006	Shylaja	Chennai	1008	180
S007	Lavanya	Mumbai	1005	325

- Display Name, City and Itemname of suppliers who do not reside in Delhi.
- Increment the SuppQty of Akila by 40

CHAPTER – 16

DATA VISUALIZATION USING PYPLOT: LINE CHART, PIE CHART, AND BAR CHART 5 MARKS

- Explain in detail the types of pyplots using Matplotlib.
- Explain the various buttons in a matplotlib window.