CHRIST THE KING BOYS MATRIC HR. SEC. SCHOOL, KUMBAKONAM – 612 001

XII STANDARD COMPUTER SCIENCE EXPECTED PUBLIC QUESTIONS – 2023

CHAPTERS	2 MARKS & 3 MARKS	5 MARKS
UNIT – 1 PROBLEM SOLVING TECHNIQUES CHAPTER – 1 FUNCTION	1. Define Subroutines 2. Define Function with respect to Programming Language 3. What is meant by Function Specification? 4. Define Arguments or Parameters 5. Define Recursive Function 6. Write the inference you get from X:=(78). 7. What is the difference between Interface and Implementation? 8. What are the Characteristics of Interface? 9. Why strlen is a pure function? 10. What happens if you modify a variable outside the function? Give an example? 11. What are the differences between Pure and Impure Function?	1. What are called Parameters and write a note on (i) Parameter without Type (ii) Parameter with Type 2. Identify in the following program **let rec gcd a b :=** **if b <> 0 then gcd b (a mod b) else return a** i) Name of the function ii) Identify the statement which tells it is a recursive function iii) Name of the argument variable iv) Statement which invoke the function recursively v) Statement which terminates the recursion 3. Explain with example Pure and impure functions. 4. Explain with an example interface and implementation.
CHAPTER – 2 DATA ABSTRACTION	1. Define Abstract Data Types 2. Differentiate Concrete Data type and Abstract Data type? 3. Which strategy is used for program designing? Define that strategy? 4. What are the different ways to access the elements of a list? Give example? 5. Identify which of the following are constructors and selectors?	1. How will you facilitate data abstraction? Explain it with suitable example?

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	(a) N1=number() (b) accetnum(n1) (c) displaynum(n1) (d) eval(a/b) (e) x,y= makeslope (m), makeslope(n) (f) display()	
CHAPTER – 3 **SCOPING**	1. Define Scope 2. Define Mapping and Namespaces 3. What are the Characteristics of Modules? 4. Define Access Control 5. How python represents the private and protected access specifiers? 6. What is meant by Modular Programming?	1. Explain the types of Variable Scope or LEGB with Examples? 2. Write any Five Characteristics of Modules. 3. Write any five benefits in using modular programming.
CHAPTER – 4 **ALGORITHMIC STRATEGIES**	1. Define Algorithm 2. Who is an Algorist? 3. What is meant by Algorithm Strategy? 4. Define Algorithmic Solution 5. State Algorithm vs Program 6. What are the two different phases of an Algorithm? 7. Define Algorithm Analysis 8. Define Pseudo code. 9. Explain the three Asymptotic Notations used to represent the time complexity of Algorithms? 10. What is Sorting? Write its types. 11. What is Searching? Write its types. 12. Define Dynamic Programming 13. Write the Steps to do Dynamic Programming?	1. Explain the Characteristics of an Algorithm? 2. Discuss about Linear search algorithm. 3. What is Binary search? Discuss with example. 4. Explain the Bubble sort algorithm with example. 5. Explain the concept of Dynamic programming with suitable example.

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	14. Define Memoization	
UNIT – II CORE PYTHON CHAPTER – 5 PYTHON – VARIABLES AND OPERATORS	1. What are the Key Features of Python? 2. What are the two types of Programming in Python? 3. What are Comments in Python? 4. What is Indentation? 5. Define Tokens and its Classification? 6. Define Identifiers and its Rules? 7. What are Keywords in Python? 8. Define Operators in Python 9. Define Assignment Operator 10. What are the Compound Operators/Assignment Operators in Python? 11. Define Conditional Operator or Ternary Operator with Example 12. Define Delimiters 13. Define Literals and its types 14. What are Numeric Literals? 15. What are String Literals? 16. Define Boolean Literals 17. What are Escape Sequences with Example? 18. List some Escape Sequences? 19. Write short notes on Exponent Data?	1. Describe in detail the procedure Script mode programming. 2. Explain input() and print() functions with examples. 3. Explain the Following Operators with Example: a) Arithmetic b) Relational c) Logical d) Conditional
CHAPTER – 6 CONTROL	1. Define Control Structure or Control Statement 2. What are the types of Control Structure?	1. Explain the While Loop with Example? 2. Write a detail note on for loop

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STRUCTURES	3. Define Sequential Statement	3. Write a detail note on if..else..elif statement with suitable example.
	4. Define Simple If Statement	
	5. Write the Syntax with example for Simple – If?	4. Write a program to display multiplication table for a given number.
	6. Define If – Else Statement	
	7. Write the Syntax with example for If – Else?	5. Write a program to display multiplication table for a given number.
	8. Write the alternate method for If – Else?	
	9. Using if-else-elif statements write a suitable program to display largest of 3 numbers.	6. Write a program to display Fibonacci series 0 1 1 2 3 4 5…… (upto n terms)?
	10. Write the Syntax for range ( ) function with example?	7. Write a program to check if the given number is a palindrome or not.
	11. Define Nested Loop Structure	
	12. List the differences between break and continue statements?	8. Write a program to print the following pattern
	13. Write a Python Program to illustrate the use of pass statement in for Loop?	* * * * *
	14. Write a Python program to calculate the sum of numbers 1 to 100?	* * * *
	15. Write a note on Break Statement?	* * *
	16. Write a program to display A A B A B C A B C D A B C D E	* * *
CHAPTER – 7	1. What are Functions?	1. Explain the different types of function with an example.

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PYTHON FUNCTIONS	2. What are the different types of Functions?	2. Explain the scope of variables with an example.
	3. What are the Advantages of Function?	3. Write a Python code to find the L.C.M. of two numbers?
	4. Write the Syntax for User – Defined Function?	4. Explain recursive function with an example.
	5. What are the things that need to be noted when defining Functions?	5. Explain the following built-in functions.
	6. Define Block and Nested Block?	(a) id()
	7. What are the Advantages of User – Defined Function?	(b) chr()
	8. How to pass the parameters in Functions?	(c) round()
	9. Define Parameters and Arguments in Python Functions	(d) type()
	10. What is Anonymous Function or Lambda Function?	(e) pow()
	11. What is the use of Lambda or Anonymous Function?	
	12. Write the Syntax with Example for Anonymous Function?	
	13. Define Return Statement	
	14. Write the Syntax for Return Statement with example?	
	15. What happens when we modify Global Variable inside the function?	
	16. Write a python program to check whether the given year is leap year or not?	
	17. Define abs() function with syntax and example	
	18. Define ord() function with syntax and example	
	19. Define chr() function with syntax and example	
	20. Define bin() function with syntax and example	
	21. Define type() function with syntax and example	

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	22. Define id() function with syntax and example	
	23. Define min() function with syntax and example	
	24. Define max() function with syntax and example	
	25. Define sum() function with syntax and example	
	26. Define format() function with syntax and example	
	27. Define round() function with syntax and example	
	28. Define pow() function with syntax and example	
	29. Define floor() function with syntax and example	
	30. Define ceil() function with syntax and example	
	31. Define sqrt() function with syntax and example	
	32. What is Composition in Functions?	
	33. What is the base condition in Recursive Function?	
CHAPTER – 8 STRINGS AND STRING MANIPULATION	1. Define Strings 2. Define Subscript and its types 3. Write the General format of replace( ) function with example? 4. Write a Python Program to check whether the given string is palindrome or not? 5. Write the Syntax and Example for String Formatting? 6. Define format() Function with Example 7. Define the following Built – in String Functions: a) len() b) capitalize() 8. Define the center( ) function in String Functions 9. Define the find( ) function in String Functions	1. Explain about string operators in python with suitable example?

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10. Define the following Built – in String Functions:

  a) isalnum() b) isalpha()   c) isdigit()

11. Define the following Built – in String Functions:

  a) isupper() b) islower()

12. Define the following Built – in String Functions:

  a) upper()   b) lower()

13. Define the following Built – in String Functions:

  a) title()   b) swapcase()

14. Define the following Built – in String Functions:

  a) ord()   b) chr()   c) count()

15. Define Membership Operators

16. Write a Python Program that accept a string from the user and display the same after removing vowels from it

17. Write a Python Program that count the occurrences of a character in a string

18. What will be the output of the following python code?

  str1 = "School"

  print(str1*3)

19. Write a Python program to display the given pattern

C O M P U T E R

C O M P U T E

C O M P U T

C O M P U

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	C O M P C O M C O C 24. What will be the output of the given python program? str1 = "welcome" str2 = "to school" str3=str1[:2]+str2[len(str2)-2:] print(str3)	
UNIT – III MODULARITY AND OOPS CHAPTER – 9 LISTS, TUPLES, SETS AND DICTIONARY	1. Define List 2. How to create a list in the Python with Example? 3. Define Nested List 4. Define Reverse Indexing or How will you access the list elements in reverse order? 5. What is the use of len() function in Python? 6. How to change the list elements in the Python? 7. How to delete the elements from the list? 8. Differentiate del and remove() functions in list? 9. Define pop( ) function in List? 10. Define clear( ) function in List? 11. What is the syntax for range() function with example? 12. Define List Comprehension 13. Define the following list functions: a) copy() b) count()	1. What the different ways to insert an element in a list. Explain with suitable example. 2. What is the purpose of range( )? Explain with an example. 3. What is nested tuple? Explain with an example. 4. Explain the different set operations supported by python with suitable example?

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14. Define the following list functions:

   a) index()   b) reverse()   c) sort()

15. Define the following list functions: a) max() b) min() c) sum()

16. 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.

17. Define Tuple

18. What are the Advantages of Tuples over List?

19. How to Create Tuples?

20. Write the syntax to create Tuples for n number of elements?

21. How to Create Tuples using tuple() function?

22. Define Singleton Tuple

23. How to Update the Tuple? Give example?

24. How to Delete the Tuple? Give example?

25. Define Tuple Assignment

26. Define Nested Tuple

27. Write a python program to swap two values using tuple assignment

28. 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

29. Define Sets

30. How to create sets?

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	31. How to create sets using List or Tuple?
	
	32. Define Dictionary
	
	33. Write the Syntax for Dictionary?
	
	34. How to create a Dictionary?
	
	35. Define Dictionary Comprehension
	
	36. What is the difference between the List and Dictionary?
	
	37. What will be the output of the following code?
	
	  list = [2**x for x in range(5)]
	
	  print(list)	

CHAPTER – 10 PYTHON CLASSES AND OBJECTS	1. Define Class in Python 2. Write the Syntax of Class in Python? 3. How to Create Class Objects in Python? Or Define Class Instantiation? 4. How to Access Class Member in Python? 5. Define Python Class Function or Define Class Method 6. Write a Python Program to check and print if the given number is odd or even using class 7. Write a Python Program to find total and average marks using class 8. Differentiate Private and Public Data Members? 9. How will you create constructor in Python? 10. What is the output of the following program? class Sample:	1. Write a program to accept a string and print the number of uppercase, lowercase, vowels, consonants and spaces in the given string.

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```
__num=10
def disp(self):
print(self.__num)
S=Sample()
S.disp()
print(S.__num).
```

11. Find the error in the following program to get the given output?

```
class Fruits:
    def __init__(self, f1, f2):
        self.f1=f1
        self.f2=f2
    def display(self):
        print("Fruit 1 = %s, Fruit 2 = %s" %(self.f1, self.f2))
F = Fruits ('Apple', 'Mango')
del F.display
F.display()
```

Output

Fruit 1 = Apple, Fruit 2 = Mango

12. What is the output of the following program?

```
class Greeting:
    def __init__(self, name):
        self.__name = name
    def display(self):
```

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	print("Good Morning ", self.__name) obj=Greeting('Bindu Madhavan') obj.display() 13. How to define constructor and destructor in python?	
UNIT – IV DATABASE CONCEPTS AND MYSQL CHAPTER – 11 DATABASE CONCEPTS	1. Define Database 2. Define DBMS 3. What are the Advantages of DBMS? 4. Define the following Terms: a) Record b) Field c) Table 5. Mention few examples of a database? 6. What are the types of DBMs users? 7. Define Normalization 8. What is Relational Algebra? 9. What are the differences between Select and Project command?	1. What are the Characteristics of Database Management System? 2. What are the Components of DBMS? 3. Explain the different types of data model. 4. Explain the different types of relationship mapping. 5. Differentiate DBMS and RDBMS. 6. Explain the different operators in Relational algebra with suitable examples.

CHAPTER – 12
STRUCTURED QUERY
LANGUAGE (SQL)
	1. Define SQL
	2. How to Create Database?
	3. What are the SQL Commands which comes under DDL?
	4. What are the types of DML?
	5. What are the SQL Commands which comes under DML?
	6. What are the SQL Commands which comes under DCL?
	7. What are the SQL Commands which comes under TCL?
	8. Define DQL
	9. Differentiate Table and Column Constraint?
	10. Define DISTINCT Keyword with SELECT Command
		1. Write the different types of constraints and their functions.
		2. What are the components of SQL? Write the commands in each.
		3. Construct the following SQL statements in the student table-
		     (i) SELECT statement using GROUP BY clause.
		     (ii) SELECT statement using ORDER BY clause.
		4. Explain the following DML Commands:
		 a) INSERT b) DELETE c) UPDATE
		5. Explain the following DDL Commands:

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	11. Define ALL Keyword with SELECT Command 12. What is BETWEEN and NOT BETWEEN Keywords? 13. Define IN and NOT IN Keyword with SELECT Command 14. Define WHERE clause with example 15. Define HAVING clause with example 16. Write a query that selects all students whose age is less than 18 in order wise.	a) ALTER b) TRUNCATE c) DROP TABLE 6. Explain the TCL Commands?
CHAPTER – 13 PYTHON AND CSV FILES	1. Define CSV File 2. State the difference between Excel and CSV file? 3. What is the Purpose of CSV file? 4. What are the ways to read a CSV File? 5. Define open() method 6. Write a note on open() method? What is the difference between the two methods? 7. Define close() method 8. What is the difference between the write mode and append mode? 9. Mention the default modes of the File? 10. What is use of next() function? 11. Write the Syntax and explain csv.reader() method? 12. How to create a CSV file with default delimiter comma? 13. What is meant by dialect? 14. How to create a CSV file with Custom Delimiters?	1. Tabulate the different mode with its meaning. 2. Write the different methods to read a File in Python. 3. Write a Python program to write a CSV File with custom quotes. 4. Write the rules to be followed to format the data in a CSV file.

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	15. What is the difference between sorted() and sort() method? 16. What is the difference between csv.reader() and DictReader()? 17. Define CSV.writer() method 18. Write the Syntax and explain csv.writer() method? 19. Explain about the writerow() method and writerows() method? 20. Write a python program to modify an existing file? 21. Define Appending a Row 22. Write a Python program to read a CSV file with default delimiter comma (,)?	
UNIT – V INTEGRATING PYTHON WITH MYSQL AND C++ CHAPTER – 14 IMPORTING C++ PROGRAMS IN PYTHON	1. What is the difference between Python and C++? 2. Define Scripting Language 3. Define Compiler and Interpreter 4. What is the difference between Compiler and Interpreter? 5. What is the difference between Scripting and Programming Languages? 6. What are the Applications of Scripting Language? 7. What are the commonly used interfaces for importing C++ program into Python? 8. Define MinGW Interface 9. How to execute C++ program through Python? 10. What is the Syntax to execute the Python Program?	1. Explain each word of the following command. Python <filename.py> -<i><C++ filename without cpp extension> 2. What is the purpose of sys,os,getopt module in Python? 3. Write the syntax for getopt() and explain its arguments and return values?
CHAPTER – 15 DATA	1. Define SQLite 2. How to create a Database using SQLite?	1. Explain about the Aggregate Functions in SQL? 2. Write in brief about SQLite and the steps used to use it.

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MANIPULATION THROUGH SQL	3. Define fetchall() function 4. How to display a record using fetchone() function? 5. How to display all records using fetchone() function? 6. How to display all records using fetchmany() function?	3. What is the use of HAVING clause. Give an example python script 4. What is the use of SQL DISTINCT clause. Give an example python script 5. What is the use of SQL WHERE clause. Give an example python script
CHAPTER – 16 DATA VISUALIZATION USING PYPLOT: LINE CHART, PIE CHART, AND BAR CHART	1. Define Data Visualization 2. What are the General Types of Data Visualization? 3. What are the uses of Data Visualization? 4. What are the types of Visualizations in Matplotlib? 5. Define Scatter Plot 6. Define Box Plot 7. Define Line Chart 8. Define Bar Chart 9. Define Pie Chart	1. Explain in detail the types of pyplots using Matplotlib. 2. Explain the various buttons in a matplotlib window. 3. Explain the purpose of the following functions: a. plt.xlabel b. plt.ylabel c. plt.title d. plt.legend() e. plt.show()