

Total number of printed pages: 3

NB/XII/CSC/1

2024

## COMPUTER SCIENCE

Total marks : 70

Time : 3 hours

### General instructions:

- i) Approximately 15 minutes is allotted to read the question paper and revise the answers.
- ii) The question paper consists of 21 questions. All questions are compulsory.
- iii) Marks are indicated against each question.

**N.B:** Check that all pages of the question paper are complete as indicated on the top left side.

1. **Choose the correct answer from the given alternatives:** **10x1 = 10**

- (a) In Python, a single line comments is preceded by a \_\_\_\_\_.
  - i) " "
  - ii) || ||
  - iii) #
  - iv) all of the above
- (b) A list in Python
  - i) is 0 index based
  - ii) can be accessed by indexing
  - iii) negative indices can be used in indexing
  - iv) all of the above
- (c) The invocation of a function refers to
  - i) defining a function
  - ii) calling a function
  - iii) name of a function
  - iv) all of the above
- (d) The '+' suffix can be used to grant \_\_\_\_\_ access to the file.
  - i) read
  - ii) read and write
  - iii) read or write
  - iv) none of the above
- (e) Which of the following is more efficient, if the input list is sorted?
  - i) linear search
  - ii) binary search
  - iii) Both are equally efficient
  - iv) depends on the input constraints
- (f) Which package of python is used to draw 2-D graphics?
  - i) Linear graph
  - ii) matplotlib
  - iii) circular queue
  - iv) none of the above
- (g) Which of the following statement is correct?
  - i) A data structure is used to organize elements.
  - ii) The data structure may be used to access elements efficiently.
  - iii) The knowledge of data structure helps the programmer to make efficient programs.
  - iv) all of the above



- iii) Deleting a given element from an array. **Or** 3
- b.** State the applications of Queues.
15. **a.** Name two communication channels used in networking and explain any one. **Or** 3
- b.** Explain one bit parity check with example.
16. Create a table called **Customer** having the following attributes: 3
- |                   |            |           |
|-------------------|------------|-----------|
| • RegistrationID, | • Fname,   | • Mname,  |
| • Lname,          | • Gender,  | • Phone,  |
| • City,           | • State,   | • Street, |
| • House.No,       | • Country, |           |
- in the database **Carwash**. The ID should be of char type and the rest of the fields should be varchar. One can decide which fields should be **null** and which **not-null**.  
Use carwash
17. **a.** What is a join? What are the various types of joins? **Or** 3
- b.** Write the steps to insert a record in a table using SQL connector.
18. **a.** Write a program to find the sum of squares of first  $n$  natural numbers. Also, find its complexity. **Or** 5
- b.** Which function is used to plot a bar in Matplotlib? Explain its arguments.
19. **a.** Write a program to insert an element in a list at a given position. **Or** 5
- b.** Write an algorithm to convert a postfix expression to an infix expression.
20. **a.** Write a short notes on the following: **Or** 5
- i) GSM      ii) CDMA      iii) WLL
- b.** What is meant by topology? Explain the different types of topologies.
21. **a.** What is SQL? Explain the different categories of commands in SQL. **Or** 5
- b.** State the syntax of the following functions:
- i) max( )      ii) min( )      iii) avg( )      iv) sum( )  
v) count( )

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