

2023

COMPUTER SCIENCE

(Theory)

Full Marks : 70

Pass Marks : 21

Time : Three hours

All the questions are compulsory.

The figures in the right margin indicate full marks for the questions.

Select the correct answer from each of the following and rewrite it.

1. A deque can support – 1
 - (A) stack operation only
 - (B) queue operation only
 - (C) both stack and queue operations
 - (D) neither stack nor queue operation

2. Which of the following is the simplest sorting algorithm ? 1
 - (A) Bubble sort
 - (B) Selection sort
 - (C) Insertion sort
 - (D) Quick sort

3. Which of the following operation used to get the common tuples from two tables? 1
 - (A) UNION
 - (B) INTERSECTION
 - (C) MINUS
 - (D) CARTESIAN PRODUCT

P.T.O.

4. Which of the following can cover the largest area ?

(A) PAN

(B) LAN

(C) WAN

(D) MAN

5. The two way communication in which both devices can send and receive data simultaneously in –

(A) Half-duplex communication

(B) Full-duplex communication

(C) Simplex communication

(D) Both (A) and (B)

Give very short answer of the following questions :

6. Define a stack.

7. Name the method used to position the file object at a particular position in a file.

8. What is the use of raise statement in exception handling ?

9. What is DBMS ?

10. Write the statement which is used to make changes in the structure of a table.

11. What are constraints in MYSQL ?

12. How can you get the total number of records in a table in SQL ?

13. Write the SQL command to removed primary key from the table "EMPLOYEE".

14. Name a network security system designed to protect a private network from unauthorized access. 1

15. Which type of cable is used in backbone network ? 1

Give short answer of the following questions :

16. Open a file report.txt in both read and write mode using with clause. 2

17. Convert the following infix notation to prefix and postfix notations : 2

$$A + B - C * D$$

18. State the working of Insertion sort. 2

19. What are the commonly used statistical techniques for data summarisation ? 2

20. Write the use of primary key and foreign key. 2

21. Differentiate between the degree and cardinality of a relation. 2

22. Write the use of database in real life application. 2

23. How a computer worm different from a virus ? 2

24. Write the full form and use of the following protocol : 2

(a) HTTP and (b) FTP

25. Draw the following network topologies : 2

(a) Bus and (b) Ring

Give answer of the following questions :

26. When are the following built in exception raised ? 3

(a) IOError (b) NameError (c) ImportError

27. Write the algorithm for Linear Search. 3

28. Evaluate the following postfix expression : 3

$$7, 8, 3, 5, +, 4, /, -, *$$

29. Write the purpose of the following clauses in a SELECT command. 3
- (a) DISTINCT
 - (b) ORDER BY
 - (c) WHERE
30. What are the limitations of a file system ? 3
31. Write a python program to sort a list of numbers using bubble sort. 5
32. Write a python program to search an item in a list using binary search. 5
33. Consider the table "TEACHER" having fields NAME, AGE, DEPARTMENT, SALARY and SEX. Write the SQL commands of the following : 5
- (a) Show all the information about teachers
 - (b) List all the female teachers in computer department
 - (c) List the names of the teachers in the order of their salary
 - (d) Count the no. of teachers who are older than 30
 - (e) List all the teachers whose name starts with "S"
34. (a) Define a computer network. 5
- (b) Write short notes of the following network devices :
- i. Modem
 - ii. Repeater