2024

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. The process of creating an exception object and handing it over to the runtime system is called _____? 1

   a. throwing an exception
   b. catching an exception
   c. processing an exception
   d. trying an exception

2. Which of the following modes should be used to open a file for writing binary data? 1

   a. 'w'
   b. 'w+'
   c. 'wb'
   d. 'a+'

3. Which of the following is an example of unstructured data? 1

   a.. Video
   b. E–mail
   c. Books
   d. All of the above.

4. _____ means same data are duplicated in several different places. 1

a. Data Isolation
b. Data Redundancy
c. Data Inconsistency
d. Data Dictionary

5. The number of attributes in a relation is called _____ of a relation. 1

a. domain
b. cardinality
c. degree
d. tuple

6. _____ is a circuit mounted on the motherboard of a computer and acts as an interface between computer and network. 1

a. Hub
b. Switch
c. Ethernet Card
d. Repeater

7. _____ is the protocol used for transferring files from one machine to another. 1

a. HTTP
b. SMTP
c. FTP
d. HTTPS

Give the very short answer of the following questions:

8. What is file? 1
9. 'While evaluating prefix/postfix expression we don't have to deal with operator precedence.' Justify. 1
10. Why is deque also called double ended queue? 1
11. What do you mean by collision in hashing? 1
12. What is a composite primary key? 1

13. If R1 and R2 are two relations, then draw the Venn diagram of R1-R2. 1

14. Write the output of ***SELECT MOD (5, MOD (6, 4))***. 1

15. State one difference between guided transmission and unguided transmission. 1

16. What is the range of a Bluetooth network? 1

17. What is a spyware? 1

Give short answer of the following questions:

18. What will happen if no argument or a negative number is supplied as an argument to the following functions? 1+1=2

    a. read(n)

    b. readline(n)

19. Explain any two modes you can use to open a text file for reading. 2

20. Bring out one similarity and one difference between a stack and a queue. 2

21. Why linear search is also called sequential search? How is hash function important in hasting? 1+1=2

22. Describe how you can find the median of a list of numbers. 2

23. Differentiate between CHAR (N) differs from VARCHAR (N). 2

24. Write a brief note on the two wild card characters that can be used with the LIKE operator. 2

25. Differentiate between Order By clause and Group By clause. 2

26. Draw a neat and labelled diagram of a Co-axial cable. 2

Give answer of the following questions:

27. Explain how try – except – else clause works. 3

Or

Explain any three attributes of a python file object. 3

28. Write an algorithm to search an element in a sorted list using binary search technique. 3

Or

Write a user defined function to search 45 in the list num = [23, 56, 12, 89, 45] using linear search technique. 3

29. Discuss how you can insert records in a relation. 3

Or

Explain the various SQL string functions that can be used to remove white space characters. 3

30. Write the purpose of the following SQL constraints. 1+1+1=3

a. UNIQUE

b. NOT NULL

c. DEFAULT

Or

Discuss any three multiple row functions in SQL. 3

31. Discuss the three types of Data communication. 3

Or

Discuss any three modes of malware distribution. 3

Gve answer of the following questions:

32. Convert the prefix expression (M+N)*P+Q/N to postfix expression showing the action taken, stack status and string contents at each step. 5

Or

Write a python program to evaluate the post expression [2, 4, '*', 6, 2, '/', '+']. 5

33. Write a python program to sort a list supplied by the user using selection sort technique. 5

Or

Write an algorithm to sort a list of numbers using insertion sort technique. 5

34. Consider a relation ***Student*** with the attributes RegNo, Name, Stipend, Sex, City and Email. Now write SQl command of the followings: 1+1+1+1+1=5

a. List all the students who live in 'Thoubal'.

b. List the average stipend of all male students.

c. List the different cities where the students live.

d. Make RegNo the primary key

e. List all students whose stipend is between 5000 and 5500

Or

Suggest how you can perform the following tasks in SQL. 1+1+1+1+1=5

a. Add default value to an attribute of a relation

b. Modify data type of an attribute

c. Remove repeating records from a SQL Query

d. Delete a relation from a database

e. Display the structure of an already created table.

35. Write a brief note on different network topologies. 5

Or

Define network and write a brief note on the following: 1+2+2=5

i. Adware

ii. Personal Area Network (PAN)