Written Test,

Instructions:
Tick mark the correct choice(s) of answer(s).
Give short answers in the space provided wherever applicable.
Each question carries one mark.

1. What would be the equivalent pointer expression for referring the array element a[i][j][k][l]

☐ ((((a+i)+j)+k)+l) ☐ *(*(*(*(a+i)+j)+k)+l)
☐ (((a+i)+j)+k+l) ☐ ((a+i)+j+k+l)

Solution: *(*(*(*(a+i)+j)+k)+l)

2. By default the members of a struct (in C) are _____ and members of class (in C++) are _____ .

☐ private, private ☐ public, public ☐ public, private ☐ protected,private ☐ public, protected

Solution: public, private

3. Which of the following operators cannot be overloaded in C++

☐ sizeof ☐ new, delete ☐ ++, − ☐ *

Solution: sizeof

4. Destructor can contain

☐ Zero arguments ☐ One arguments ☐ Two arguments ☐ Any number of arguments

Solution: Zero arguments

5. Java passes function arguments by

☐ value

☐ reference

☐ can be passed both by value and reference

Solution: value

6. Default access modifier in Java for any class is

☐ private ☐ protected ☐ public ☐ none of the above

Solution: none of the above

7. I want to find the differences in the lines containing the term "unix specialist" between the files foo.txt and bar.txt, and add the result to file result.unix.specialist. Which of the below commands does it?

☐ diff foo.txt bar.txt | grep "unix specialist" >> result.unix.specialist

☐ grep "unix specialist" foo.txt bar.txt > result.unix.specialist

☐ grep unix.*specialist foo.txt bar.txt | diff > result.unix.specialist

☐ diff foo.txt bar.txt | grep "unix specialist" > result.unix.specialist

Solution: diff foo.txt bar.txt | grep "unix specialist" > result.unix.specialist

8. Out of 4 choices, which choice below explains the difference between open() and fopen()

☐ open() has been replaced by fopen(), to open files.

☐ open() calls fopen() internally and opens a file.

☐ fopen() has been replaced by open(), to open files.

☐ fopen() calls open() internally to open a file.

Solution: fopen() calls open() internally to open a file.

9. Which is the fastest form of interprocess communication in UNIX

☐ Shared Memory   ☐ Sockets   ☐ Pipes   ☐ FIFO

Solution: Shared Memory

10. Given this input text **abdxyCcxyzcefacd** and regular expression **ab.*?c**. What will it match?

☐ abdxyCcxyzcefac   ☐ abdxyCcxyzc   ☐ abdxyCc   ☐ Will not match

Solution: abdxyCc

11. What is the command to search all files in your current directory for the word "unix"?

☐ grep unix *

☐ find unix -all

☐ lookup unix

☐ find -name unix .

Solution: grep unix *

12. A sorting algorithm is called stable, if it outputs elements with equal keys in the same relative order in the output as they were in the input.
Which of the following sorting algorithms are stable?

☐ Merge Sort

☐ Heap Sort

☐ Insertion Sort

Solution: Merge Sort, Insertion Sort

13. Number of cliques of size k in a graph with n nodes is _____

Solution: Number of cliques of size k in a graph with n nodes is $\binom{n}{k}$ OR Number of cliques of size k in a graph with n nodes is $^{n}C_k$

14. The Worst case occur in linear search algorithm when

☐ Item is somewhere in the middle of the array

☐ Item is not in the array at all

☐ Item is the last element in the array

☐ Item is the last element in the array or is not there at all

Solution: Item is the last element in the array or is not there at all

15. You have k sorted arrays of integers. What data structures will you use to merge all the elements in one array in ascending sorted order?

☐ Binary Tree   ☐ Hashtable   ☐ Min Heap   ☐ Max Heap

Solution: Min Heap

16. Time complexity to compute the edit distance between 2 strings of lengths m and n is

☐ O(m+n)   ☐ O(m) (if $m > n$), else O(n)   ☐ O(mn)

Solution: O(mn)

17. Which of the following transaction instructions do not conflict?

☐ Read(A) , Write(A)   ☐ Write(B), Write(B)

☐ Write(B), read(A)   ☐ Write(B), read(B)

Solution: Write(B), read(A)

18. What is the difference between "dropping a table", "truncating a table" and "deleting all records" from a table

☐ **Dropping** : Table structure + Data are deleted,
Truncating: Only data is deleted and Performs an automatic commit,
Deleting : Only data is deleted

☐ **Dropping**: Table structure + Data are deleted,
Truncating: Only data is deleted,
Deleting: Only data is deleted and Performs an automatic commit

☐ **Dropping** : Only data is deleted,
Truncating: Table structure + Data are deleted,
Deleting : Only data is deleted and Performs an automatic commit

☐ **Dropping** : Table structure + Data are deleted,
Truncating: Table structure + Data are deleted,
Deleting : Only data is deleted and Performs an automatic commit

Solution: a) **Dropping** : Table structure + Data are deleted,
Truncating: Only data is deleted and Performs an automatic commit,
Deleting : Only data is deleted

19. A SQL query executor needs to decide strategy to for execution of less than operator of where clause. Which of the following will be best suited strategy?

☐ Binary search of records with binary search tree indexes of unsorted data

☐ Linear search of records over binary search tree indexes of sorted data

☐ Linear search of records over B+ tree indexes of sorted data.

☐ Binary search of records with binary search tree indexes of sorted data

Solution: Linear search of records over B+ tree indexes of sorted data

20. A B - tree index is to be built on the Name attribute of the relation STUDENT. Assume that all student names are of length 8 bytes, disk blocks are of size 512 bytes, and index pointers are of size 4 bytes. Given this scenario, what would be the best choice of the degree (i.e. the number of pointers per node) of the B - tree?

☐ 16   ☐ 42   ☐ 43   ☐ 44

Solution: 42

21. .Which of the following statement(s) is/are correct?

☐ The cross join does not apply any predicate to filter records from the joined table.

☐ No implicit join-notation for outer joins exists in standard SQL

☐ Inner join has an implicit join-notation

☐ Where records in the FULL OUTER JOIN-ed tables do not match, the result set will have NULL values for every column of the table that lacks a matching row

Solution: The cross join does not apply any predicate to filter records from the joined table.

No implicit join-notation for outer joins exists in standard SQL

Inner join has an implicit join-notation

Where records in the FULL OUTER JOIN-ed tables do not match, the result set will have NULL values for every column of the table that lacks a matching row

22. If in a code language QUESTION is written as SWGUVKOP how is EXAMINATION written?

☐ GZCNKQBVKQO   ☐ FYBQJOCVKPM   ☐ GZCOKPCVKQP

☐ GABOKCPVKPQ   ☐ None of these

Solution: GZCOKPCVKQP

23. Blueberries cost more than strawberries. Blueberries cost less than raspberries. Raspberries cost more than both strawberries and blueberries. If the first two statements are true, the third statement is

☐ true   ☐ false   ☐ cant say

Solution: true, Because the first two statements are true, raspberries are the most expensive of the three.

24. Mr. Black, Mr. Gray, and Mr. White are fighting in a truel. They each get a gun and take turns shooting at each other until only one person is left. Mr. Black, who hits his shot 1/3 of the time, gets to shoot first. Mr. Gray, who hits his shot 2/3 of the time, gets to shoot next, assuming he is still alive. Mr. White, who hits his shot all the time, shoots next, assuming he is also alive. The cycle repeats. If you are Mr. Black, where should you shoot first for the highest chance of survival?

☐ Mr Grey   ☐ Mr White   ☐ none of them   ☐ does not matter

Solution: none of them

25. In a certain code c means /, d means -, p means *, b means + then the value of 16p4b28c7d8 (operator precedence is to be assumed as usual)

☐ 68   ☐ 60   ☐ 62   ☐ 56   ☐ 52

Solution: 60