WB JECA Sample Paper

1. Stack is a —-------------- in the data structure concept
● Basic data type
● Derived data type
● Float data type
● Char data type

2. In data structure, the stack is a linear type of data structure in which data is stored and retrieved in a ------ manner.
● No, out only in
● Last in, first out
● First in, first out
● Last out, last in

3. Merge sort follows —--------------- in data structure.
● Divide and conquer strategy
● Backtracking approach
● Heuristic search
● Greedy approach

4. In data structures, a graph is represented as a pair of sets (v,e) where
● V is the set of variables, and E is the set of edges
● V is the set of vertices, and E is the set of edges
● V is the set of vertices, and E is the set of elements
● V is the set of variables, and E is the set of elements

5. A suspension of a process, caused by an event external to that process and performed in such a way that the process can be resumed, is known as
● Scheduler
● Interrupt
● Deadlock
● Virtual Memory

6. What do you mean by best fit algorithm in memory management? Select the correct option.
● Allocate the program to a specific memory partition which is the smallest available partition, to be able to allocate the whole program.
● Allocate the program to a specific disk partition, which is the smallest available partition to be able to allocate the whole program.

- Allocate the process to a specific memory partition, which is the smallest available partition, to be able to allocate the whole process.
- Allocate the process to a specific disk partition, which is the smallest available partition, to be able to allocate the whole process.

7. In support vendor machines (SVM), a hyperplane is selected based on
- Largest separation between the two classes
- Shortest separation between two classes. The average margin between the two classes
- Largest margin between two classes

8. What do you mean by binary semaphore? Select the correct options.
- Only one entity can access the critical section at any given time instance
- Make available several access tokens to a given critical section
- It can have only two values (0,1)
- It can have only three values (-1, 0, +1)

9. In software engineering, a prototyping model can be used when
- Technical solutions are unclear to the development team
- Technical solutions are clear to the development team
- Models are unclear to the development team
- Feasibility solutions are unclear to the development team

10. In case of union compatibility ——————
- Two relations must have the same set of attributes
- Relations can have any set of attributes
- Two relations must have a different set of attributes
- No relations are union-compatible

11. Find the wrong statement based on the characteristics of the AVL tree data structure.
- An AVL tree is a binary search tree in nature
- AVL tree is known as a height-balanced tree
- AVL tree has O(log2n) search time complexity, considering 'n' as the number of nodes
- AVL tree has O(n) search time complexity, considering 'n' as the number of nodes

12. A counting semaphore is initialized to 15. Then, 4 wait operations and 2 signal operations are completed on this semaphore. The resulting value of the semaphore is
- 11
- 13
- 17
- 19

13. Choose the correct option from the following statements:
- While loop is known as an entry-controlled loop
- Do-while loop is known as an entry-controlled loop
- While loop is known as an exit-controlled loop
- Do-while loop is known as an exit-controlled loop

14. Basic elements of a computer mean ————————
- Central Processing Unit
- Centered Processing Unit
- Main Memory
- Daemon Process

15. The Apriori algorithm was proposed by ———– and ————– in 1994.
- Agarwal
- Srikant
- Roy
- Ramesh

16. Select the correct I/O management.
- Single buffering
- Multiple buffering
- Double buffering
- Circular buffering

17. Rational calculus is a
- Procedural language
- Non-procedural language
- Data definition language
- High-level language

18. What is the purpose of the confusion matrix in machine learning?
- To visualize the distribution of the data in a data sheet

- To compare the performance of different models
- To evaluate the performance of a classification model
- To evaluate the performance of a regression model

19. Which os the following is an example of a classification problem?
- Predicting the price of a house based on its features
- Predicting the weight of a person based on their height
- Predicting whether a customer will churn or not
- Predicting the age of a person based on their income

20. What is the difference between supervised and unsupervised learning?
- Supervised learning requires labelled data, while unsupervised learning does not.
- Unsupervised learning requires labelled data, while supervised learning does not.
- Supervised learning does not require data, while unsupervised learning does.
- There is no difference between supervised and unsupervised learning.

21. Which of the following features is shown by function overriding?
- Abstraction
- Polymorphism
- Inheritance
- Encapsulation

22. Given an unsorted array. The array has this property that every element in that array is at most k distances from its position in a sorted array, where k is a positive integer smaller than the size of the array. Which sorting algorithm can be easily modified for sorting this array, and what is the obtainable time complexity?
- Insertion sort with time complexity 0(kn)
- Heap sort with time complexity 0(n log k)
- Quick sort with time complexity 0(k log k)
- Merge sort with time complexity 0(k log k)

23. Which of the following statements about the primary key in a database table is true?
- A table can have multiple primary keys
- A primary key uniquely identifies each record in a table
- Primary keys can contain NULL values
- Primary keys are used to establish relationships between tables

24. When several processes access the same data concurrently, and the outcome of the execution depends on the particular order in which the access takes place is called?
- Race condition
- Critical condition
- Virtual condition
- Linear condition

25. Consider three CPU-intensive processes, which require 10, 20, and 30 time units and arrive at times 0, 2, and 6, respectively. How many context switches are needed if the operating system implements a shortest remaining time first scheduling algorithm? Do not count the context switches at time zero and at the end.
- 1
- 2
- 3
- 4