MCQs - Technical Round:

1. What is the time complexity of the quicksort algorithm in the average case?

a) O(n)

b) O(n log n)

c) O(n^2)

d) O(log n)

Answer: b) O(n log n)

2. Which of the following data structures is based on the Last-In-First-Out (LIFO) principle?

a) Queue

b) Stack

c) Tree

d) Linked List

Answer: b) Stack

3. Which of the following is not a type of join in SQL?

a) Inner Join

b) Outer Join

c) Union Join

d) Cross Join

Answer: c) Union Join

4. What is the maximum number of edges in an undirected graph with N vertices?

a) N

b) N^2

c) N(N-1)/2

d) 2N

Answer: c) N(N-1)/2

5. Which of the following sorting algorithms is stable?

a) Bubble Sort

b) Insertion Sort

c) Selection Sort

d) Quick Sort

Answer: b) Insertion Sort

6. In object-oriented programming, encapsulation refers to:

a) Hiding implementation details

b) Creating objects from classes

c) Inheriting properties from a superclass

d) Implementing interfaces

Answer: a) Hiding implementation details

7. Which of the following is not a key principle of Agile software development?

a) Customer collaboration

b) Detailed documentation

c) Responding to change

d) Working software

Answer: b) Detailed documentation

8. The HTTP status code "404 Not Found" indicates:

a) Server error

b) Client error

c) Successful response

d) Redirection

Answer: b) Client error

9. Which of the following is an example of a non-volatile memory?

a) RAM

b) Hard disk

c) Cache memory

d) SSD

Answer: d) SSD

10. Which data structure uses LIFO access and can be implemented using a dynamic array?

a) Queue

b) Stack

c) Linked List

d) Tree

Answer: b) Stack

11. Which of the following is not a valid IP address format?

a) 192.168.0.1

b) 10.0.0.256

c) 172.16.0.0

d) 127.0.0.1

Answer: b) 10.0.0.256

12. In the context of databases, ACID stands for:

a) Atomicity, Consistency, Isolation, Durability

b) Authentication, Confidentiality, Integrity, Denial-of-service

c) Availability, Compatibility, Integrity, Decentralization

d) Access Control, Identification, Directory, Encryption

Answer: a) Atomicity, Consistency, Isolation, Durability

13. Which of the following is a type of network topology where each device is connected to a central hub?

a) Bus

b) Star

c) Ring

d) Mesh

Answer: b) Star

14. The process of converting a high-level programming language into a low-level language is called:

a) Compilation

b) Interpretation

c) Execution

d) Debugging

Answer: a) Compilation

15. In object-oriented programming, inheritance allows:

a) A class to inherit properties and behaviors from multiple classes

b) A class to inherit properties and behaviors from a single class

c) A class to override the properties and behaviors of its superclass

d) A class to encapsulate its properties and behaviors

Answer: b) A class to inherit properties and behaviors from a single class

16. Which of the following is a database management system (DBMS)?

a) MySQL

b) Linux

c) Java

d) HTML

Answer: a) MySQL

17. Which of the following is a type of cache memory?

a) L1 cache

b) Stack cache

c) Main cache

d) Virtual cache

Answer: a) L1 cache

18. What is the binary representation of the decimal number 25?

a) 10011

b) 10101

c) 11001

d) 11100

Answer: c) 11001

19. Which of the following is not a valid loop construct in the C programming language?

a) for loop

b) while loop

c) until loop

d) do-while loop

Answer: c) until loop

20. Which of the following algorithms is used to find the shortest path in a weighted graph?

a) Dijkstra's algorithm

b) Breadth-First Search (BFS)

c) Depth-First Search (DFS)

d) A\* algorithm

Answer: a) Dijkstra's algorithm

MCQs - Aptitude Round:

21. If a shopkeeper sells an item at a 25% discount, what is the selling price if the original price is $80?

a) $20

b) $60

c) $75

d) $100

Answer: b) $60

22. If the sum of two numbers is 72 and their difference is 24, what is the larger number?

a) 36

b) 48

c) 60

d) 72

Answer: c) 60

23. A train travels at a speed of 60 km/h and covers a distance of 240 km. How long does it take to reach the destination?

a) 2 hours

b) 4 hours

c) 6 hours

d) 8 hours

Answer: b) 4 hours

24. If 20% of a number is 50, what is 40% of the same number?

a) 20

b) 40

c) 50

d) 100

Answer: d) 100

25. A car travels a distance of 360 km with an average speed of 60 km/h. How long does the journey take?

a) 2 hours

b) 4 hours

c) 6 hours

d) 8 hours

Answer: c) 6 hours

26. A bag contains 8 red balls and 6 green balls. What is the probability of drawing a red ball?

a) 0.4

b) 0.5

c) 0.6

d) 0.8

Answer: a) 0.4

27. If 2x + 5 = 17, what is the value of x?

a) 4

b) 6

c) 7

d) 8

Answer: c) 7

28. If 3 workers can complete a task in 6 days, how many days will it take for 6 workers to complete the same task?

a) 2 days

b) 3 days

c) 6 days

d) 9 days

Answer: b) 3 days

29. A rectangular field has a length of 20 meters and a width of 12 meters. What is its perimeter?

a) 32 meters

b) 44 meters

c) 56 meters

d) 64 meters

Answer: c) 56 meters

30. If a product costs $120 after a 20% price reduction, what was the original price?

a) $96

b) $100

c) $120

d) $150

Answer: d) $150

Coding Questions:

1. Trapping Rainwater
2. Minimum Boxes in a Trip