

Hughes Technical Paper 5

1. Given a digital ckt with nand gates. what is o/p Ans. nor gate
2. Given an logical expr. x,y,z. simplify ans. xz
3. It is recommended to use which type of variables in a recursive module. Ans. static variables.
4. which one of following is not memory management model?given buddy system, monitors, paging, swapping Ans. monitors
5. What m/c is used to recognize context free grammar ? Ans. pushdown automata
6. Which type of grammar can be recognized by finite state m/c Ans. right linear grammar.
7.

```
proc() {  
    static i=10;  
    printf("%d",i);  
}
```

If this proc() is called second time, what is the o/p Ans. 11
8.

```
int arr[] = {1,2,3,4}  
int *ptr=arr;  
*(arr+3) = *++ptr + *ptr++;  
Final contents of arr[] Ans. {1,2,3,4}
```
9. CSMA/Cd is used in which lan Ans. ethernet
- 10.8085 pgm : LXI sp, 2021,
LXI b, 1234 (??)
push b
contents of stack after pushing ?
- 11.One question on synchronous transmission : ans. Timing info is embedded in data itself
- 12.What for start bit is used in RS232 transmission.
- 13.One solution for deadlock prevention for dining philosopher's problem
Ans. Allow one person to take first left stick and then right stick and remaining persons in reverse order.
- 14.4bit seq no in sliding window protocol with selective repeat.what is the max no. of acks that can be held at transmitter ans. 8
- 15.given a height balanced tree. If we add one more node , how many nodes gets unbalanced ? Ans. 3

16. Given an arbitrary pointer to an element in a singly linked list?
what is the time complexity for its deletion. Ans. $O(n)$

17. what is the diff b/n c and c++
a. dynamic scoping
b. nested switching
c. declaration of variables in any code block
d. separation of compilation and linking
Ans. c (??)

18. which one is false ?
a. $0 < x < y$, $n^x = O(n^y)$
b. $\sqrt{\log(n)} = O(\log \log n)$
c. $O(\log n / 100) = O(100 \log n)$
d. $2^n \neq O(n^k)$;
Ans. b or a. (??)

19. $S \rightarrow S+S$; $s \rightarrow s*s$; $s \rightarrow a$ how many parse trees possible : $a+a*a+a$ Ans. 5

20. 4-1 demultiplexer is to be implemented using a memory chip. how many address lines and word length required Ans. 4, 1

21. Vector intr mechanism. in 8085. Ans. fixed locations in memory when an intr comes.

22. ARP is used for : Ans. IP to MAC addr conversion.

23. given 100 to 999 nos. Probability of picking a no. with out digit 7. Ans. 18/25.

24. Ten film rolls. 3 defective, prob. of picking up 2 defective rolls with out replacement Ans. 6/90

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26. Given adjacency matrix for a directed graph with n vertices and e edges. How much time will it take to find out indegree of a vertex Ans. $O(n)$

27. No. of nodes of degree 2 in a binary tree with n leaf nodes. Ans. $n-1$

Technical

1. CSMA/Cd protocol used in Ans : Ethernet
2. Checksum in IP packet is Ans : Sum of the bits and 9's complement of sum
3. Inselective repeat Max Seq is given find window size Ans : $(15+1)/2 = 8$
4. Main memory cache direct mapping Ans : 64
5. Address lines and data lines for 4K x 16 Ans : Addr 12, Data 16

6. Infix to postfix conversion uses Ans : operator stack
7. Printing of static variable Ans : 11
8. Ans : 1,2,3,4 (Program is given

```

array[0] = 1;
array[1] = 2;
array[2] = 3
array[3] = 4
ptr = array[0]
*(arr+3) = *(++array ) + *(array-1)++)

```

There may be some mystique in writing the program. Check it out.
Answer is correct
9. One Question on Scheduling Preemptive
10. Which of the following is not memory model (1) buddy system (2) monitor (3) virtual ... etc.
11. High balancing AVL time Ans : 3
12. Virtual to physical address mapping page table given
13. regular expression of identifier L(LUD)*
14. Simplification in boolean Algebra Ans : xz
15. Logical gate is given we have to find what is that Ans : NOR
16. Solution for Diriving philofphing Ans : d
17. The feature C++ have and c donot have Ans : Variables can be declared inside also.
18. Number of nodes with degree two in a binary tree of n leaves Ans : n-1
19. Solution for Diriving philofphing Ans : d
20. The question on RS232 (Use of start bit in Rs 232 protocol)
21. Floating point representation Ans : 2's complement