

PERSISTENT TECHNICAL PAPER JULY 2006

2) On which maximum operations cannot be performed. Something like that

- a) Array
- b) Hash Table
- c) Linked List
- d) Heap
- e) Binary Tree

3) A hash table has a size of 11 and data filled in its position like {3,5,7,9,6} how many comparisons have to be made if data is not found in the list in worst case

- a) 2
- b) 6
- c) 11
- d)

ANS:- 2

4) Forest with n Trees and having p edges then

- a) $n(1-p)$
- b) $n = p + 2$
- c) $n - p + 1$
- d)
- e)

5) Find the shortest path from B to E

ANS: 7

one Question on Postfix.

2nd SECTION (C LANGUAGE)

1) what is `int>(*ptr(int))(void)`

- a) Pointer to function with no arguments (void) and return pointer to integer.
- b) ----
- c)

2) `func(char *s1, char *s2)`

```
{  
    char *t;  
    t=s1;  
    s1=s2;  
    s2=t;  
}
```

```
void main()  
{
```

```
    char *s1="jack", *s2="jill";  
    func(s1,s2);  
    printf("%s %s", s1,s2);  
}
```

OUTPUT jack jill

```

3) void main()
{
    int a[5] = {1,2,3,4,5}, i, j=2, b;
    for (i = 0; i < 5; i++)
        func(j, a[i]);
    for (i = 0; i < 5; i++)
        printf("%d", a[i]);
}
func(int j, int *a)
{
    j = j + 1;
    a = a + j;
    b = b + 2;
}

```

OUTPUT: 12345

```

4) void main()
{
    for (a=1; a <= 100; a++)
        for (b=a; b <= 100; b++)
            foo();
}
foo()
{ }

```

how many times foo will be called.

- a) 5050
- b) 1010
- c)
- d)

ANS: 5050

5) A tree was given with nodes assigned colours red, blue, yellow, green and more than one node is having colour red. They have asked that how many times the output will be red if the total number of evaluation is 11.

some code was given--I don't remember that.

3rd Section(O.S)

1) If there are n processes and each process waits p time in waiting state then cpu utilization is:-

- a) $n(1-p)$
- b) $n*p$

2) No. of pages are given and using LRU algorithm we have to find the number of page faults.

- a) 2
- b) 6
- c) 5
- d) 7

3) There is a file server which provides locking for mutual exclusion. If any process locks the file and abruptly terminated this will result in indefinitely locking. The solution they found is to implement a timer for locking of file i.e. if time outs then server assumes that file is indefinitely locked and

terminate the process –

- a) this solution is perfect for mutual exclusion
- b) this will solve indefinite locking
- c) this will result in interleaving of file between processes
- d) will allow the concurrent process to access the file.

4) A critical Section is

- a) for mutual exclusion
- b) a set of shared resources
- c)
- d)

5) Match the following.

- | | |
|---------------------|---------------------|
| 1) Critical Section | a) Mutual exclusion |
| 2) Wait/signal | b) Deadlock |
| 3) Working set | c) Hoare's Monitor |
| 4) Semaphore | d) |

4th Section (TOC)

1) There was a question on automata

2) CFG was given

$S \rightarrow 1 S 1$

$S \rightarrow 0 S 0$

$S \rightarrow 1 1$

$S \rightarrow 0 0$

Find out the string

3)

5th section General

1) Probability to find digits which not contain 7 between 100 to 999

Ans = $18/25$

2) Difference between Packet switching & Circuit Switching.

Ans = CS take more time to establish circuit.

3) In cache memory 100ns and in main memory 1200ns what is the cache hit ratio (Question is not exactly the same, but something related to cache hit ratio)

4) From the set {a, b, c, d, e, f} find no. of arrangements for 3 alphabets with no data repeated.

ANS = 360. OR for 4 alpha ANS = 720.

5)

6th section (DBMS)

1) employee(eno, ename)

works_on(eno, pno, ename)

project(pno, project)

select ename from employee where eno in (select eno from works_on where pno = (select * from project))

what is the output ?

- a)Employee who works on all project.
 - b)Employee who works one project .
 - c) name of employee who works on more than one project.
 - d)
- 2)Select ename from employee where salary = salary
- 3)what is the use of B-tree
- a) has fixed index file size
 - b) is better for queries like $< \leq > \geq$
 - c) searching will be easy
 - d)
- 4)Question on inner Join returning N- tuples & Full outer Join returns M- tuples. For both Variables are given & in options relationship is given to find whichever have greater tuples.And variable D is given-----
- a)then $N = M$
 - b) $N = M + D$
 - c)
 - d)
- 5) To save space which option is better
- a) write all join operation then select then project
 - b) write all join operation then projects then select
 - c)write all join operation then select between project

Test 2- Consist of Two Questions. In this we have to make a C program.

Q.1)

Inward-spiral order matrix.

i.e you have to traverse the matrix in clockwise manner and display the elements,
for eg.

```

1  2  5  4
8  9  7  1
9  7  6  3
2  3  5  8

```

output should be 1, 2, 5, 4, 1, 3, 8, 5, 3, 2, 9, 8, 9, 7, 6, 7

Q.2)

consider a two dimensional array $A[N][N]$ of the order $n \times n$.Then you find the sub-squares and display the largest sum of the sub-square.Sub- squares are the contiguous elements in the array.Largest sum can be find out by summing the elements in the sub-square.