HUGHES PAPER ON 7th AUGUST 2008
Technical Paper

There were two papers one was aptitude (36 questions) and other was technical(20 questions)

1: given an expression tree and asked us to write the in fix of that expression four choices

2: global variables in different files are
a)at compiletime
b) loading time
c) linking time
d)execution time

3)size of(int)
a) always 2 bytes
b) depends on compiler that is being used
c) always 32 bits
d) can't tell

4)which one will over flow given two programs 2
prog 1: prog2:
main() main()
{ {
int fact; int fact=0
long int x; for(i=1;i<=n;i++)
fact=factoral(x); fact=fact*i;
} }
int factorial(long int x)
{

if(x>1) return(x*factorial(x-1);
}
a) program 1;
b) program 2;
c) both 1 &2
d) none
}

5) variables of fuction call are allocated in
a) registers and stack
b) registers and heap
c) stack and heap
d)

6) avg and worst case time of sorted binary tree

7) data structure used for proority queue
a) linked list
b) double linkedd list
c)array
d) tree

8)
```
main(){
char str[5]="hello";
if(str==NULL) printf("string null");
else printf("string not null");
}
```
what is out put of the program?
a) string is null
b) string is not null
c) error in program
d) it executes but p rint nothing

9)there are 0ne 5 pipe line and another 12 pipe line sates are there and flushed time taken to execute five instructions
a) 10,17
b) 9,16
c)25,144
d)

10) for hashing which is best on terms of buckets
a)100
b)50
c)21
d)32
Ans 32

11)
```
void f(int value){
for (i=0;i<16;i++){
if(value &0x8000>>1) printf("1")
else printf("0");
}
}
```
what is printed?
a) bineray value of argument b)bcd value c) hex value d) octal value

12)
```
void f(int *p){
static val=100;
```

```
val=&p;
}
main(){
int a=10;
printf("%d ",a);
f(&a);
printf("%d ",a);
}
```

what will be out put?
a)10,10

13)

```
struck a{
int x;
float y;
char c[10];
}
union b{
int x;
float y;
char c[10];
}
```

which is true?
a) size of(a)!=sizeof(b);
b)
c)
d)

14)

```
# define f(a,b) a+b
#defiune g(c,d) c*d
```

find valueof f(4,g(5,6))
a)26
b)51
c)
d)

15)
find avg access time of cache
a)tc*h+(1-h)*tm
b)tcH+tmH
c)
d) tc is time to access cache tm is time to access when miss occure

16)
main()

```
{
char a[10]="hello";
strcpy(a,'\0');
printf("%s",a);
}
```

out put of the program?
a) string is null b) string is not null c) program error d)

17)
simplyfy k map
1 x x 0
1 x 0 1

18)

```
int f(int a)
{
a=+b;
//some stuff
}
main()
{
x=fn(a);
y=&fn;
```

what are x & y types
a) x is int y is pointer to afunction which takes integer value

19)

```
char a[5][15];
int b[5][15];
```

address of a 0x1000 and b is 0x2000 find address of a[3][4] and b[3][4]
assume char is 8 bits and int is 32 bits
a) b) c) d)

There are 20 questions all in techinical paper and 36 questions in appititude test in appititude thay have given all diagrams and asked to find what comes next thay are quite easy and i hope if u practice r.s aggraval u can do it easily for tecnical thay have given 1 hr for 20 questions and for not technical thay ha ve given only 40 min and 36 questions,

This is the paper i have right now:
1.

```
main()
{
fork();
fork();
fork();
printf("\n hello");
}
```

How many times print command is executed?

2. main()
{
int i,*j;
i=5;
j=&i;
printf("\ni= %d",i);
f(j);
printf("\n i= %d",i);
}
void f(int*j)
{
int k=10;
j= &k;
}
output is
a 5 10
b 10 5
c 5 5
d none

3. some question on pipeline like you have to findout the total time by which execution is completed for a pipeline of 5 stages.

4.
main()
{
int *s = "\0";

if(strcmp(s,NULL)== 0)
printf("\n s is null")p
else
printf("\n s is not null");
}

5. some syntax which returns a pointer to function

6. size of integer is
a. 2 bytes
b 4 bytes
c. machine dependant
d compiler dependent.

7.max and avg. height of sorted binary tree
a. logn n

b n logn

8. some question. like the number was shifted everytime by one and bitwise and with 10000000. one was supposed to find what the code was doing. I feel the answer was most probably finding decimal value.

9. int a[5][4]
int is 2 bytes base address for array is 4000(Hexa)
what will be addr for a[3][4]?
int is 4 bytes same question.

10. implementation of priority queue
a. tree
b linked list
c doubly linked list.

Huges Sample Test Paper

1. Find the probability of getting a number with 7 between 100 and 999 (both inclusive).

2. There are 10 items in a box, out of which 3 are defective.
2 balls are taken one after the other.
What is the probability that both of them are defective?

3. Context free grammar is accepted by

a) finite automata
b) push down automata
c) two way bounded automata
d) both b and c

4. Which is not a memory management scheme?

a) buddy system
b) swapping
c) monitors
d) paging

Ans : c

5. Simplify the Karnaugh map given below and derive its expression in SOP form

-
1
1
-

1
-
-
1

1
-
-
1

-
1
1
-

6. Question on NAND gates implementation.

7. Definition of Context Sensitive Grammar

8. An identifier can start with a letter followed by any number of letter or digits .

9. With the following configuration:
8MB total memory, 256kb cache , 4kb is block size.
Using direct mapping, how many different physical memory blocks can be mapped on to the cache.

(a) 64 (b) 256 (c) 128

10. CSMA/CD is used in

a) token ring
b) FDDI
c) ethernet

11. In TCP/IP header, checksum contains

a) sum of all the words
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12. What is the maximum number of acknowledgements for a 4 bit sequence number in a sliding window protocol.

13. Which is a good way of representing varaibles in recursion

a) local variables
b) static varaibles
c) global variables

14. Given the following c program

```
func()
{
static int i = 10;
printf("%d",i);
i++;
}
```

What is the value of i if the function is called twice ?

15. Given the following c program

```
func(int *i, int*j)
{*i=*i * *i;
*j=*j* *j;
}

main()
{ int i = 5, j = 2;
func(&i,&j);
printf("%d %d", i, j);}
```

What is the output?

16. Given page table, page size and offset find the corresponding physical address ?

17. In a memory chip 4k size and 16bit words are to be stored.
No of address and data lines required is:

18. Identify in which pass of the 2 pass compiler are the following compiled

1) literals
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a) relocation bits
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a) MAC to IP
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A balanced tree is given and a node is addded at the leaf.
Find the no of unbalanced nodes?

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s -> s + s ; s -> s * s ; s -> a
Find the no of parse trees for a+a*a+a

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b) 5

c) 6
d) 7

24. Order of deleting a node from a linked list.
(pointer is to an arbitrary node)

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At a time both horizontal and a vertical cut is done.
Find the order of complexity

a) O(n2)
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To find the complexity of indegree of the node. e - edge n- vertices

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A is mXn and B is mX1

a) there is a unique solution if rank of A is same as rank of augumented matrix [A b]
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29. LXI sp,2099h
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30. A and B are sets.
A's cardinality is m and B's is n where m < n
How many one to one mappings can be obtained.

a) n ^ m
b) npm
c) mpn

d) mcn

31. In scheduling algorithnms which are logically executed but suspended

a) preemptive
b) SJF
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a) copying programs files through a pipe
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a) snoopy protocols
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a) 1 person will take left one and all other will take right one
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38. What is the difference between c and c++?

a)In c++ we can define variables in the middle
b)dynamic scoping

39. Which of the following is correct

a) Synchronous tranmission needs more badwidth than Asychronous.
b) Inasychronous transmission , the time is associated with data itself.....

Hughes Sample Paper #2

1. There was a circuit given using three nand gates with two inputs and one output. Find the output.

a) OR
b) AND
c) XOR
d) NOT

Ans. (a)

2. Suggest a sorting algorithm which is efficient (in worst case) to 10 values

a) Binary tree
b) Selection
c) Bubble
d) Any of the above

3. What is the number of comparisons in the worst case to merge two sorted lists containing n elements each.

a) 2n
b) 2n-1
c) 2n+1

d) 2n-2

4.Iintegrated check value(ICV) are used as:

Ans. The client computes the ICV and then compares it with the senders value.

5. Question on client-server system using asychronous request from the client

6. If a binary tree is constructed using nodes with two pointers each,
how many null pointers does a tree with N nodes have

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d) Depends on the number of edges

7. Which of following statements about heap is wrong

a) An n element heap has height log n(base of log is 2)
b) Smallest element of heap is always a leaf
c) A array in reverse sorted order is a heap
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8. When applets are downloaded from web sites , a byte verifier performs _____?

Ans. Status check.

9. For the following C program

```
void insert(key,r)
typekey key,data array r;
{extern int n;
if(n>=max) /*error table if full */
else r[n++].k=key;
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void f(char *p)
{p=(char *) malloc(6);
strcpy(p,"hello");
}

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{char *P="bye";
f(p);
printf("%s',p);
}
```

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Hit ratio given. Find the average access time

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a) Black box testing strategy
b) White box testing strategy
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14. Which one of the following can't be used to find an internet address given the domain name

a) /etc/host
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Ans. Read the, field in the packet header with to send IP or IPX protocol.

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18. Cyclomatic complexity

```
{if((x=0) or (y=0))
p=0;
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{p=x;i=1;
while(i!=y)
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i=i+1; }
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The output is

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The output is

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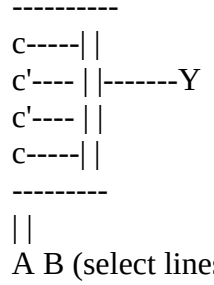
Hughes Software Systems

1. Which of the folowing is not correct
a. (x+y)'=x'.y' b. (x'+y')'=x.y
c. (x'.y')'=x+y d. (x'+y')'=x'.y'
Ans : [d]

2. Question on logic ckt. U have to find the output
ans. AB'+CD'+EF'

3. Output of MUX



ans. A xor B xor C

4.If X and Y are two sets. |X| and |Y| are corresponding coordinates and exact no.of functions from X to Y is 97 then
a. |X|=97 |Y|=1 b. |X|=1 |Y|=97
c. |X|=97 |Y|=97 d. .....

5. If two dies are thrown simultaneously what is the prob. of one of the dice getting face 6 ?
a. 11/36 b. 1/3 c. 12/35 d. 1/36
Ans :[a]

6. The relation ,<,on reals is
a. a partial order because of symmetric and reflexive
b. ... antisymmetric and ....
c. not .... asymmetric and non reflexive
d. ... . not anti-symm and non reflexive

7. In C language the parameters are passsed by
a. values b. name c.referrence d....

8. Advantage of SRAM over DRAM
ans. faster

9. Diasy chaining related question (refer Z80)
a. uniform interrupt priority
b.non ....
c.interfacing slower peripherals
d.....

10. RAM chips arranged in 4X6 array and of 8kX4bit capacity each. How many address lines reqd. to access each byte
a. 12 b. 16 c.15 d. 17

11.Question related to AVL trees regarding how many no.of nodes to be changed to become balanced after addition of a leaf node to a particular node.
ans . 3

12.When following sequence is insertedin the binary search tree no.of nodes in left and right subtrees
52 86 64 20 3 25 14 9 85

13.Method used for Disk searching..
a.linked list b.AVL c.B-tree d. binary tree

14.Which of the following is correct statement.
a. 1's complement can have two zero re[resentations
b.2's ... ... represent an extra neg. number
c.2's & 1's have no difference in representing 16-bit no.
d.....

15.AX=B where A is mXn ,b&X are column matrices of order m
a. if m<n, X has infinite solutions
b.if m=n, rank of A <n then X has trivial solutions
c.... d....

16.The option avialable in C++, not C:
a.dynamic scoping
b.declaration in the middle of code block
c.seperate compiled and linked units
d. ....

17.int a[4]={1,2,3,4};
int *ptr;
ptr=a;
(a+3)=(++ptr)+(*ptr++);
A part of code is shown. The elements in A after
the execution of this code.
a.1 2 3 4 b. 1 2 3 6
c. compilation error d.1 2 2 4 [a]

18.Critical section program segment is
a. enclosed by semaphores with P & V operations
b. deadlock avoidance
c. where shared resources are accessed
d. ...

19.when head is moving back and forth, the disk scheduling
algorithm is _____
a) scan b) sstf c) fcfs d).....

20.how many times the loop will execute

LOOP LXI B,1526H
DCX B
JNZ LOOP
a)1526H times b) 31 c)21 d)38

21. the addressing mode in which the address of the operand is
expressed explicitly within the instruction

a)index addressing b)absolute c)indirect d) immediate

22. (A - B) U (B - A) U (A ^ C) = ?
where A,B are two sets A' , B' are compliments of A and B
a) A U B b) A ^ B c).... d).....

23. the network that does not use virtual circuit
a) IP b) X.25 c).... d).....

24. source routing bridge
a)source will route the frame
b)frame will routed with info in header
c).... d).....

26. cache access time 100 msec. main memory access time 800 msec
if the hit ratio is 95% , what is mean access time ...

27. the module that should be always reside in main memory is
a) loader b)link module c)... d)....

.... and some questions related to

1. addressing mode 2.assembler passes 3.linking and loading
4. file directory search 5. turning machine
6. finite state machine 7. daisy wheel

28. The order of algorithm to merge the two sorted lists of
lengths m and n is
a. O(m) b. O(n) c. O(m+n) d. O(log(m)+log(n))
29.A chocolate block is of 4 X 4 size.How many cuts are needed
to make 1 X 1 size blocks. No simultaneous vert. & horz. cuts.

Hughes Software Systems – Paper 2

Q. CSMA/Cd protocol used in
Ans : Ethernet

Q. Checksum in IP packet is
Ans : Sum of the bits and 9's complement of sum

Q. Inselective repeat Max Seq is given find windowsize
i.e. Ans : (15+1)/2 = 8

Q. Main memory cache direct mapping
Ans : 64

Q. Address lines and data lines for 4K x 16
Ans : Addr 12, Data 16

Q. Infix to postsize commession uses
Ans : operator stack

Q. Printing ofstatic variable
Ans : 11

Q. 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 me some mistique in writing
the program. Check it out.
Answer is correct?

Q. One Question on Scheduling Preemptive

Q. Which of the following is not memory model
(1) buddy system (2) monitor (3) virtual ... etc.

Q. Hight balancing AVC time
Ans : 3

Q. Simplification in boolean Algebra
Ans : xz

Q. The feature C++ have and c donot have
Ans : Variables can be declared inside also.

Q. Number of nodes with degree two in a binary tree of n leaves
Ans : n-1

Q. Difference between synchronous and asynchronous transmission

Q. Floating point representation
Ans : 2's complement

Q. Using which pin it's possible to address 16 bit addresses even though there are only 8 address bits in 8085?

Ans: ALE

Q. Voltage gain for an amplifier is 100 while it is operating at 10 volts.
What is the O/P voltage wen i/p is 1 volt

Q. Quality factor indicates
a) Quality of inductor b) quality of capacitor c) both

Q. Qns related to bridges, routers and generators, which OSI layer they correspond to.

Q. OPAmp's I/P ciurrent, O/p current and CMRR is given, what is the voltage gain

Q. resistance increases with temperature in a) Metal b) semiconductor

Q. 16 bit mantissa and 8 bit exponent can present what maximum value?

Q. 4 bit window size in sliding window protocol, how many acknowledgements can be held?

Q. Security functionality is provided by which layer of OSI

Q. Among AM and FM which is better and why?

Q. LASt stage of TTL NAND gate is called:
Ans: Totem Pole Amplifier

Q. SR to JK flip flop conversion.
Ans: S=JQ', R=KQ

Q. LSB of a shift register is connected to its MSB, what is formed:
Ans: RING Counter

Q. 2-3 Qns based on Demorgan's laws (identiies: (A+b)' = A'b', etc)

Q. 2 qns on Logic gates (O/p of logic gates)

Q. Diff in IRET and RET statements of 8086

Q. How many address bytes are required to address an array of memory chips (4 * 6), each chip having 4 memory bits and 8k registers.

Q. Diff. in memory mapped and I/P O/P mapped Input/Output (Refer a book on Microprocessor)

Q. Qn on pipeline architecture

Q. Quesyionn on LAPB protocol

Hughes Software Systems

1.
```
f(char *p)
{
p[0]? f(++p):1;
printf("%c",*p);
}
```
if call that fuction with f(Aabcd) what is the output??
ans:dcbaA (Just reversing the string

2
```
f(char *p)
{
p=(char *)malloc(sizeof(6));
strcpy(p,"HELLO");
}
main()
{
char *p="BYE";
f(p)
printf("%s",p);
}
```
what is the o/p???
ans:HELLO

3
To sorting array of 10 elements which sorting is best
a)slection
b)bubble
c)tree sort
d)....
ans:a

4
To saving space paoint of view which sort is best
a)selection
b)insertion

c)both a & b
d)...
check it once.U Can easy Aanswer this question(UCA)

5
Which statement is wrong on heap
a)Any two childs should not same
b)..
c)..
d)...
ans:a

6)
one more question on heap
UCA

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read about cyclometric complexity..

8
how many null pointer are there in N number binary tree
ans:N+1

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Two sorted list of size n what are the maximum comparison in merge
ANs:2n-1

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pc is incremented while executing ---------- instruction
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this is gates (NAND)problem
It means some gate figure has given with all NAND gate we have write equavalent gate
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x:validating :Are we producing product right
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c)x and Y "
d)x & y is right statement

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comparison between hashtable and binary tree
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client server is working in asyn mode then how communication will take place
bt client and server.

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once context swithing occures then ----------will take place
a)saving register
b)saving stack
c)....
d).....

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If precondition is failed what u say about postcondition?
Note:Read about preconditon and postcondition

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whiling download java applete then web broswer do the folling
a)checking the class structure..
b)...c)....d).....

Read about this

21
Strings in Java
a)Mutable
b)variable length string
c)...
d)....
ans:b

22
in Internet Transprot layer which is not a protocol
a)/etc/host
b)TCP
c)UDP
d)...

23
Which is not specified in CODD's rules
a)....
b)....
c)...
d).....
It is from DBMS question
Refer NAVATHI BOOK chapter -9 appendx topic is CODDE's rules

24
what is the use of Normalization
a)....b)....c)...d)...
Any one can answer

25
Futional dependecy x->y is shows that
a)if x1=x2 then y1=y2
b)...c)...d)...
ans:a

26
one question on IP addsress 243.65.77.8 some thing
a)...b)..c)..d)...

every one can answer

27
If A sends a message to B with encryption then key is
a)A public key
b)B public key
c)A private key
d)B private key
ans:b (Check it once)

28
In a class only declaration of the function is there but defintion is not there then what is that function
ans:virtual function

29
what is not necessary condition in dead lock
ans:a

30
One question from multible inheritance...
a)..b)..c)...d).....

31)
ICV protocal

32 one question from catches like write-through protocal etc

33
catche access time is 100ns ,memory access time is 1000ns and hit ratio is 0.9 then what is average memery access time
a)100ns
b)200ns
c)400ns
d)500ns
ans:b

Hughes Software Systems – Paper 4

1- What is max. no. of hops in hypercube n/w with n (=2 ^ p) to go from one node to another ?

a. p
b. log p
c. n ^ 2

2- What is Kerberos ?
ans. Authentication Protocol.

3-In completely connected multiprocessor system with n processors
, links will be of the order of
a. O(n ^ 2)
b. O(2 ^ n)
c. O(n/2)

4-When quick sort gives worst performance ?
ans. When elements are in order.

5- o/p of each sorting step of 8 elements was given and had to recognise which sorting algo.?
Ans. Bubble sort (Not Sure , Check it out)

6-In worst case ,which sort is best out of following sorts?
a.heap
b.selection
c.quick (ans.)
d. insertion

7-Three very simple gate circuits each having inputs A,B,C,D were
given and had to tell ,which two give same result ? (DeMorgan's Law was used in solving)
Ans was (a) &(c) (o/p of a & c was coming to be AB +CD)

8) K-map given,had to tell simplified function
Ans was perhaps AB+AD +AC+BCD
K-Map was
CD`
AB 0 0 0 0
0 0 1 0
1 1 1 1
0 1 1 1

9-What is Function Point ?
Ans. S/W estimation technique

10-p points to an integer. We don't want p to change value. In C, what declarations will we use?
A const int *p
b.int *p
c.int const *p
e. int* const p (perhaps ans.)

11-Diff between 2NF &3NF ?
Ans. D (last option)

12.Which does not use client server model ?
a. Email
b. Web access
c. C. Telephone call
d. N/w file system

13-In a pipeline having 3 stages, each having reliability of 0.9
,what is overall reliability of pipeline?
a. 0.9
b. 0.729
c. 0.81

14-2level cacheis there first level cache's access time is 100ns,second level cache's access time is 33ns & memory access time is 1000 ns What is total memory access time ?
ans. 140 ns

15-In public key cryptography,Awillsend message to B
ans. Using B's public key

16-What does projection of a relation give?
Ans.gives vertical partition of relation corresponding to specified columns.

17-For disk or direct access storage, which is best ?
a. AVL
b. B-tree

c. Red tape ...

18-There is a tree with inorder threading Node B is inserted as
left child of nade A. Node A already has right child . Where will the null ptr of B point ?
ans. Parent of A (perhaps)

19-There is a diskless workstation. Which will be the first protocol it will use ?
a FTP
b. ARP
c. HTTP
d. RARP

20-Compiler keeps which of following ?
ans. Symbol table

21- 'ping' command uses which protocol ?
ans. ICMP

22-Merge sort uses which technique?
Ans. Divide and Conquer

23-Program counter is incremented in
a. fetch (ans)
b. decode
c. execute

24-what does the following program do ?

```
f(int n)
{
int c;
while(n)
{
n&=n-1;
c++;
}
print c;
}
```

ans. Program prints the no. of set bits in no.

25-What is this called (char *) (*(*(*A[X]) ( ))) ( )
ans. Array of X pointers to a function returning pointer to functions that are returning pointer to
char (not sure)

26- For synchronisation in distributed computing, what should not be there ?
a. all machines are synchronised by a global clock
b. all systems should have their own clock (perhaps ans)

27-Java applet of a moving /waving file is running on one machine then it means
a.Java's executable code is downloaded and running on the m/c
b.A virtual X server is running on that m/c while the actual program is running on the web server.

28-What is in RSA algo. ?
a. First the session key is encrypted & then whole message is encrypted using RSA Algo.
b. Message is encrypted using RsA algo.
c. First Rsa algo is used &then encrypted with the session key.

29-What is dirty read?
a. Transaction reexecutes and gives diff. Results from the original execution
b. Read is done when the transaction is not yet committed

30-What is coupling ?
a. It tells the strength of interconnection between two program units.
b. It tells the strength of interconnection between twtrength of interconnection between two program units.
c. It tells the strength of interconnection between twwwtrength of interconnection between two program units.
d. It tells the strength of interconnection between twwwo program units and one program unit

31-Any n/w on the computer can have only
a. one domain &one IP
b. more than one domain & more than one Ip
c. one domain and more than one IP
d. more than one domain & one IP

32-Which one does not have file descriptor ?
a. process
b. keyboard
c. pipe
d. socket

33-What does CONNECT BY means
a.connect to a different databaser for retreival
b.arrange in tree ordered structure

34-In two phase commit protocol, why log is used during transmission &reception ?
a. To retrieve the status in case of crash
35-In which algo. Waiting time is minimun?
Ans, SJF

36-How many address bits are there in Ipv6
ans. 128 bits

37-During run time heap is managed by
a. a user process in kernel mode
b. A system process manages heap for all the processes
c. A system process for each process
d. A user process in user mode

38-In which of following search is efficient?
a. height balanced tree
b. Weight balanced tree
c. Binary tree

39.A ques. on resource relocation, sharing

40-some ques. options were sth like
a. transparency control
b. Migration control
c. Concurrency control

41-X:In DFD, input is converted into output by passing through various functional units
Y:DFD cannot be used in object oriented design

a. both X& y are correct
b. both X & Y are incorrect
c. X correct, Y incorrect
d. Xincorrect, Y correct

42-Where regression testing is used ?
a. Dynamic analyzers
b. Loaders

43-For Java interfaces , what is true ?
a. Functions declarations are not given'
b. Variables are not declared
c. Instance variables are not used

44-In a linked list, we can delete a node in order of
a. 1
b. n
c. n ^ 2

45-If there are N people and we have to do symmetric & asymmetric cryptography, how many keys would
be used in these cases respectively?
a. N & N ^ 2 (probably ans)
b. N ^ 2 & N
c. N & N
d. N ^ 2 & N ^2

46-The protected element of a class can't be accessed by
a. member functions of the same class
b. member functions of the derived class
c. member functions of any other class in the same program (Ans.)

47-NFS uses same file structure as unix

48-To solve an expression which of following trees will you use ?
a. postfix
b. infix

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ans:b

Hughes Software Systems

1) given an expression tree and asked us to write the in fix of that expression
four choices

2) global variables in different files are
a:at compiletime
b) loading time
c) linking time
d)execution time

3)size of(int)
a) always 2 bytes
b) depends on compiler that is being used
c) always 32 bits
d) can't tell

4)which one will over flow given two programs
prog 1: prog2:
main() main()
{ {
int fact; int fact=0
long int x; for(i=1;i<=n;i++)
fact=factoral(x); fact=fact*i;
} }

int factorial(long int x)
{
if(x>1) return(x*factorial(x-1);
}
a) program 1;
b) program 2;
c) both 1 &2
d) none
}

5) variables of fuction call are allocated in
a) registers and stack
b) registers and heap
c) stack and heap
d)

6) avg and worst case time of sorted binary tree

7) data structure used for proority queue
a) linked list b) double linkedd list c)array d) tree

8)
```
main(){
char str[5]="hello";
if(str==NULL) printf("string null");
else printf("string not null");
}
```
what is out put of the program?
a) string is null b) string is not null c) error in program d) it executes but p
rint nothing

9)there are 0ne 5 pipe line and another 12 pipe line sates are there and flushed
time taken to execute five instructions
a) 10,17
b) 9,16
c)25,144
d)

10) for hashing which is best on terms of buckets
a)100 b)50 c)21 d)32
ans 32

11)
```
void f(int value){
for (i=0;i<16;i++){
if(value &0x8000>>1) printf("1")
else printf("0");
}
}
```
what is printed?
a) bineray value of argument b)bcd value c) hex value d) octal value

12)
```
void f(int *p){
static val=100;
val=&p;
```

```
}
main(){
int a=10;
printf("%d ",a);
f(&a);
printf("%d ",a);
}
```

what will be out put?
a)10,10

13)

```
struck a{
int x;
float y;
char c[10];
}
union b{
int x;
float y;
char c[10];
}
```

which is true?
a) size of(a)!=sizeof(b);
b)
c)
d)

14)

```
# define f(a,b) a+b
#defiune g(c,d) c*d
```

find valueof f(4,g(5,6))
a)26 b)51 c) d)

15)
find avg access time of cache
a)tc*h+(1-h)*tm b)tcH+tmH
c) d) tc is time to access cache tm is time to access when miss occure

16)

```
main()
{
char a[10]="hello";
```

```
strcpy(a,'\0');
printf("%s",a);
}
```

out put of the program?
a) string is null b) string is not null c) program error d)

17)
simplyfy k map
1 x x 0
1 x 0 1

18)

```
int f(int a)
{
a=+b;
//some stuff
}
main()
{
x=fn(a);
y=&fn;
```

what are x & y types
a) x is int y is pointer to afunction which takes integer value

19) char a[5][15];
int b[5][15];
address of a 0x1000 and b is 0x2000 find address of a[3][4] and b[3][4]
assume char is 8 bits and int is 32 bits
a) b) c) d)

20.

```
main()
{
fork();
fork();
fork();
printf("\n hello");
}
```

How many times print command is executed?

21.

```
main()
{
int i,*j;
```

```
i=5;
j=&i;
printf("\ni= %d",i);
f(j);
printf("\n i= %d",i);
}
void f(int*j)
{
int k=10;
j= &k;
}
```

output is
a 5 10
b 10 5
c 5 5
d none

22.
some question on pipeline like you have to findout the total time by which execution is completed for a pipeline of 5 stages.

23.

```
main()
{
int *s = "\0";
if(strcmp(s,NULL)== 0)
printf("\n s is null")p
else
printf("\n s is not null");
}
```

24. size of integer is
a. 2 bytes
b 4 bytes
c. machine dependant
d compiler dependent.

25.max and avg. height of sorted binary tree
a. logn n
b n logn

26.
some question. like the number was shifted everytime by one and bitwise and with 10000000.

27. int a[5][4]
int is 2 bytes base address for array is 4000(Hexa)
what will be addr for a[3][4]?
int is 4 bytes same question.

28.
implementation of priority queue
a. tree
b linked list
c doubly linked list.

Hughes Software Systems - Paper 6

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. TCP/IP hdr checksum : what method is used ?
Ans. one's complement of sum of one's complement.

10. CSMA/Cd is used in which lan
Ans. ethernet

11. 8085 pgm : LXI sp, 2021,
LXI b, 1234 (??)
push b
contents of stack after pushing ?

12. One question on synchronous transmission :
ans. Timing info is embedded in data itself

13. What for start bit is used in RS232 transmission.

14. 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.

15. 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

16. given a height balanced tree. If we add one more node , how
many nodes gets unbalanced ?
Ans. 3

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

18. 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 (??)

19. which one is false ?
a. 0<x<y, n power x = O(n power y)
b. root of log(n) = O(log logn)
c. O(logn/100) = O(100 logn)
d. 2n not = O(n power k);
Ans. b or a. (??)

20. S->S+S; s->s*s; s->a
how many parse trees possible : a+a*a+a
Ans. 5

21. 4-1 demultiplexer is to be implemented using a memory chip.
how many address lines and word length required
Ans. 4, 1

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

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

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

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

26. The purpose of hashing is :
Ans. O(1) complexity

27. 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)

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

Huges paper

1) find the probability of getting a number with 7 between 100 and 999 (both inclusive).
ans:

2) There are 10 items in a box, out of which 3 are defective. 2 balls are taken one after the other. what is the probability that both of them are defective?
Ans: 1/15 or 6/90

3) Context free grammar is accepted by
a) finite automata
b)push down automata
c) two way bounded automata
d) both b and c

4) which is not a memory management scheme?
a) buddy system
b) swapping
c) monitors
d) paging Ans : c

5) qn. on karnaugh map for simplifying boolean expressions

- 1 1 -
1 - - 1
1 - - 1
- 1 1 -
karnaugh map

6) qn. on nand gates .

7) context sensitive grammar

8) An identifier can start with a letter followed by any number of letter or digits .
ans: L.(LUD)*

9) 8MB total memory, 256 k cache , 4k is block size. direct mapping
how many different physical memory blocks can be mapped on to the cache.
a) 64 b) 256 c) 128

10) CSMA/CD is used in
a) token ring
b) FDDI
d) ethernet
Ans : d

11) In TCP/IP header , checksum contains
a) sum of all the words
b) ones complement of the data
c) ones complement of the sum of all the words
d) ones complement of the sum in ones complement
Ans : d

12) Max no of Acknowledgements for a 4 bit sequence number in a sliding window protocol.

13) which is a good way of representing varaibles in recursion
a) local variables
b) static varaibles
c) global variables
d)

14) c programs
```
func() {
static int i = 10;
printf("%d",i);
i++;
}
```

what is the value of i if the function is called twice ?

Ans : 11

15) Qn. on pointers .

16) given page table,page size and offset find the corresponding physical address ?
ans : a (3*1024+576) (pageno*pagesize+offset)

17) In a memory chip 4k size and 16bit words to be stored. No of address and data lines reqd.
Ans) 16 data and 12 address

18) idetify in which pass of the 2 pass compiler
1) literals
2) address resolution
3) listing
4)

19) object code not requires
a) relocation bits
b) external names and place where they are located
c) absolute adress
d) all the object codes

20) ARP
a) MAC to IP
b) IP to MAC
c)
Ans : b

21) Qn on Balanced tree ? A balanced tree is given and a node is addded at the leaf and asked to find the no of unbalanced nodes?

22) order of Hashing time
a) 0(1)
b) 0(n2)

4) parse tree
s -> s + s ; s -> s * s ; s -> a
find the no of parse trees for a+a*a+a
a) 4
b) 5

c) 6
ans: 5

25) order of deleting an node from a linked list. (pointer is to an arbitrary node)
a)0(1)
b)0(n)

26) A choclate of size nXn is given and is to be made into pices of size 1x1. At a time both horizontal and a vertical cut is done. Find the order of complexity
a) 0(n2)
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c) o(logn)
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29) AX = B . A is mXn and B is mX1 and several options given like
a) there is a unique solution if rank of A is same as rank of augumented matrix [A b]
b) there are multiple solutions

30) LXI sp,2099h
LXI b, 2012h
push b
31) Which of the following are false (on complexities)

32) A,B are sets. A's cardinality is m and B's is n where m < n
how many one to one mappings can be obtained.
a) n ^ m
b) npm
c) mpn
d) mcn

33) In scduling algorithnms which are logically executed but suspended
a) preemptive
b) SJF
c)non preemptive
d) all the above
Ans : a

34) I/O redirection is
a) copying programs files through a pipe
b) input files are created
c) input file taken from existing ones
d) none

35) symmetric multiprocessing can be done in
a) snoopy protocols
b) cache coherence

36) dining philospheres problems to avoid dead lock
a) 1 person will take left one and all other will take right one
b) adjacent persons should not eat concurrently

36) process states ? which is the correct order
a) timeout:ready -> running
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c)
d)

37) for converting infix expression to postfix what
do we require
a) operand stack
b) operator stack
c)

38) 0 is reprented as both and negative and positive
a) ones complement
b) twos complement
c) two's complement has extra negative number

39) Difference between c and c++?
a)In c++ we can define variables in the middle
b)dynamic scoping

40) Which of the following is correct

a) Synchronous tranmission needs more badwidth than Asychronous.
b) Inasychronous transmission , the time is associated with data itself....

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future (values / varriables changed - similer paper)

The Questions are follows

1. Number of null pointers in any binary tree = n+1

2. max(t1,t2,...tn) = pipelining

3. 50% -DBETXXXXXX - density

4. print (Head(T))
Traverse(left(T))
print (Head(T))
Traverse(right(T)) - ans: none of the above

5. Boolean expn Evalvate

6. Common subexpn : - ans : a + e

7. LRU : 1, 2, 3.

8. Tr. Delay - 10000 bits ans. 10.01

9. Grammar of Number of shift / reduce operator : ans. 4

10. CPU scheduling 9,8 ?

11. if even x/2
else p(p(3x+1))

2^k + 1: 3 . 2^(k-1) clarify this with sans

12. allocation ans: (ii) only

13. swapping : ans: reference only

14. Compiler - related Qn.

15. LAN frames - ? related Qn.

16. parameter passing (35,20)

17. sliding window protocol
- BUFFER SIZE large

18. kernel mode - deallocate resource

19. logic circuit
ans . Minimum OR = 3

20. Combinatorics related

21. priority scheduling

22. cobegin
begin x = y; x= x+1; y= x
begin x =y; z= z+1; y= z
coend

ans. Number of values possi = 2

23. 2 bits flip / 2 bits exchange

ans : the word with one '1'

24. any addr
K^+ v(a) + 2I - 2a

You try to prepare all subject questions in all the papers being

sent so that it will be useful in the interview.
concentrate on OS, networks.

PART 1

1). A beggr collects cigarette stubs and makes one ful cigarette with every 7 stubs. Once he gets 49 stubs . How many cigarettes can he smoke totally.
Ans. 8
2). A soldiar looses his way in a thick jungle at random walks from his camp but mathematically in an interestingg fashion. First he walks one mile east then half mile to north. Then 1/4 mile to west, then 1/8 mile to south and so on making a loop. Finally hoe far he is from his camp and in which direction.
ans: in north and south directions
1/2 - 1/8 + 1/32 - 1/128 + 1/512 - and so on
= 1/2/((1-(-1/4))
similarly in east and west directions
1- 1/4 + 1/16 - 1/64 + 1/256 - and so on
= 1/((1- (- 1/4))
add both the answers
3). hoe 1000000000 can be written as a product of two factors neither of them containing zeros
Ans 2 power 9 x 5 ppower 9 (check the answer)
4). Conversation between two mathematcians:
first : I have three childern. Thew pproduct of their ages is 36 . If you sum their ages . it is exactly same as my neighbour's door number on my left. The sacond mathematiciaan verfies the door number and says that the not sufficient . Then the first says " o.k one more clue is that my youngest is the youngest" Immmediately the second mathematician answers . Can you aanswer the questoion asked by the first mathematician?
What are the childeren ages? ans 2 and 3 and 6
5). Light glows for every 13 seconds . How many times did it between 1:57:58 and 3:20:47 am
ans : 383 + 1 = 384

6). 500 men are arranged in an array of 10 rows and 50 columns . ALL tallest among each row aare asked to fall out . And the shortest among THEM is A. Similarly after resuming that to their originaal podsitions that the shorteest among each column are asked to fall out. And the longest among them is B . Now who is taller among A and B ?
ans A
7). A person spending out 1/3 for cloths , 1/5 of the remsaining for food and 1/4 of the remaining for travelles is left with

Rs 100/- . How he had in the begining ?
ans RS 250/-
8). there are six boxes containing 5 , 7 , 14 , 16 , 18 , 29 balls of either red or blue in colour. Some boxes contain only red balls and others contain only blue . One sales man sold one box out of them and then he says " I have the same number of red balls left out as that of blue ". Which box is the one he solds out ?
Ans : total no of balls = 89 and (89-29 /2 = 60/2 = 30
and also 14 + 16 = 5 + 7 + 18 = 30
9). A chain is broken into three pieces of equal lenths conttaining 3 links each. It is taken to a backsmith to join into a single continuous one . How many links are to tobe opened to make it ?
Ans : 2.
10). Grass in lawn grows equally thickand in a uniform rate. It takes 24 days for 70 cows and 60 for 30 cows . How many cows can eat away the same in 96 days.?
Ans : 18 or 19
11). There is a certain four digit number whose fourth digit is twise the first digit.
Third digit is three more than second digit.
Sum of the first and fourth digits twise the third number.
What was that number ?
Ans : 2034 and 4368

If you qualify in the first part then you have to appear for the second i.e the following part.

Part 2.

1. From a vessel on the first day, 1/3rd of the liquid evaporates. On the second day 3/4th of the remaining liquid evaporates. what fraction of the volume is present at the end of the II day.
2. an orange galss has orange juice. and white glass has apple juice. Bothe equal volume 50ml of the orange juice is taken and poured into the apple juice. 50ml from the white glass is poured into the orange glass. Of the two quantities, the amount of apple juice in the orange glass and the amount of orange juice in the white glass, which one is greater and by how much?
3. there is a 4 inch cube painted on all sides. this is cut into no of 1 inch cubes. what is the no of cubes which have no pointed sides.
4. sam and mala have a conversation. sam says i am vertainly not

over 40. mala says i am 38 and you are atleast 5 years older than me. Now sam says you are atleast 39. all the sattements by the two are false. How hold are they realy.
5. ram singh goes to his office in the city, every day from his suburbun house. his driver mangaram drops him at the railway station in the morning and picks him up in the evening. Every evening ram singh reaches the station at 5 o'clock. mangaram also reaches at the same time. one day ramsingh started early from his office and came to the station at 4 o'clock. not wanting to wait for the car he starts walking home. Mangaram starts at normal time, picks him up on the way and takes him back house, half an hour early. how much time did ram singh walk.
6. in a railway station, there are tow trains going. One in the harbour line and one in the main line, each having a frequency of 10 minutes. the main line service starts at 5 o'clock. the harbour line starts at 5.02a.m. a man goes to the station every day to catch the first train. what is the probability of man catchinhg the first train
7. some people went for vaction. unfortunately it rained for 13 days when they were there. but whenever it rained in the morning, they had clean afternood and vice versa. In all they enjoyed 11 morning and 12 afternoons. how many days did they stay there totally
8. exalator problem repeat
9. a survey was taken among 100 people to firn their preference of watching t.v. programmes. there are 3 channels. given no of

people who watch
at least channel 1
" " 2
" " 3
no channels at all
atleast channels 1and 3
" " 1 and 2
" " 2 and 3
find the no of people who watched all three.
10. albert and fernandes they have two leg swimming race. both start from opposite and of the pool. On the first leg, the boys pass each other at 18 mt from the deep end of the pool. during the II leg they pass at 10 mt from the shallow end of the pool. Both go at const speed. but one of them is faster. each boy rests for 4 sec to see at the end of the i leg. what is the length of the pool.
11. T H I S Each alphabet stands for one
I S digit, what is the maximum value T
---------- can take

X F X X
X X U X

X X N X X
---

1. an escalator is descending at constant speed. A walks down and takes 50 steps to reach the bottom. B runs down and takes 90 steps in the same time as A takes 10 steps. how many steps are visible when the escalator is not operating.
2. evvery day a cyclist meets a train at a particular crossing. the road is straignt before the crossing and both are travelling in the same direction. cyclist travels with a speed of 10 Kmph. One day the cyclist comes late by 25 min. and meets the train 5km before the crossing. what is the seppd of the train.
3. five persons muckerjee, misra, iyer, patil and sharma, all take then first or middle names in the full names. There are 4 persons having I or middle name of kumar, 3 persons with mohan, 2 persons withdev and 1 anil.
--Either mukherjee and patil have a I or middle name of dev or misra and iyer have their I or middle name of dev
--of mukherkjee and misre, either both of them have a first or middle name of mohan or neither have a first or middle name of mohan
--either iyer of sharma has a I or middle name of kumar hut not both.
who has the I or middle name of anil
4. reading conprehension
5. a bird keeper has got Ppigeon, M mynas and S sparrows. the keeper goes for lunch leaving his assistant to watch the birds.
a. suppose p=10, m=5, s=8 when the bird keeper comes back, the assistant informs the x birds have escaped. the bird keeper exclaims oh no! all my sparrows are gone. how many birds flew away.
b. when the bird keeper come back, the assistand told him that x birds have escaped. the keeper realised that atleast2 sparrows have escaped. what is minimum no of birds that can escape.
6. select from the five alternatives A,B,C,D,E
AT THE end of each question ,two conditions will be given.
the choices are to filled at follows.
a. if a definete conclusion can be drawn from condition 1
b. if a definete conclusion can be drawn from condition 2
c. if a definete conclusion can be drawn from condition 1 and 2
d. if a definete conclusion can be drawn from condition 1 or 2
e. no conclusion can be drawn using both conditions

1. person 1 says N<5
person says n>5
person 3 says 3N>20
person 4 says 3n>10
person 5 says N<8
whaT IS value of N
a) 1. no of persons who speak false being less than no of persons who tells the truth.
2. person 2 is telling the truth.
b) 1. no of persong telling the truth is greater than no of persons telling lies
2. person 5 is telling the truth.
7. there are N coins on a table. there are two players A&B. you can take 1 or 2 coins at a time. the person who takes the last coin is the loser. a always starts first
--1. if N=7
a) A can always win by taking two coins in his first chanse
b) B can win only if A takes two coins in his first chance.
c) B can always win by proper play
d) none of the above
--2. A can win by proper play if N is equal to
a) 13 b) 37 c) 22 d) 34 e) 48 ans. e.
--3. B can win by proper play if N is equal to
a) 25 b)26 c) 32 d) 41 e) none
--4. if N<4, can A win by proper play always

8. Two turns have vertain pecular charcteristics. One of them always lies on Monday, Wednesday, Friday. \the other always lies on Tuesdays, thursdays and saturdays. On the other days they tel the truth. You are given a conversation.
person A-- today is sunday my name is anil
person B-- today is tuesday, my name is bill

answers for selected questions
2. equal 1. 150
3. 8 2. 60 kmph
4. 37(M),41(S) 3. Mukherjee
5. 45 min. 8. today is tuesday
6. 0.8
7. 18
11. T max value = 4

3. Anil kumar Mukherjee
Kumar Misra dev
Mohan iyer dev

kumar patil mohan
mohan sharma kumar

Verifone Interview.
Here, we had three single man panels. They are seeing the subjects taken and asking questions in that mainly. They didn't go deep into any subject and they were just asking overview. When they catch any new word they are asking about it.

These are some of the questions asked to us.(not to a single person.)

What is a finite Automata.
what is a turing machine.
how many processors are there in a pentium microprocessor. in Sparc.
difference between risc and cisc.
is risc always fast.

what is a real time system.
name some real time OS
what are the characteristics of Real time OS.
is DOS a real time OS.
what is a kernel,shell.

what is binary search, traversal, hashing etc.
given a scenario what is the suitable data structure.
write a code to count the no. of 1's in a binary rep. of a number.
memory taken for char *, int * etc.
char *cp; int *ip; cp++,ip++ - what is the result.
compare the no. of bytes in unix and Dos for long char short int.
how to make programs portable on unix and Dos under such circumstances.
in c++, what is a constructor, destructor etc.
what is friend etc.

what is waterfall model, prototype model etc.
what is testing. what is unit testing, integration testing etc.

What is indexing in databases?
What is atomicity?
Can recursive pgms be written in C++, Write a recursive pgm to calculate factorial in c++.
What is best data structure to store the processes info in a real time

operating system?

VERIFONE

Verifone test Questions :

There are two parts :

1. Aptitute test : 15 Minutes, 20 Questions

Some questions are:
(not in order)
1. A question (first one)on addition of fraction of inches
a. was the answer

2. There were 36 chairs. how many ways can they be placed such that all rows have equal no. of chairs and atleast three chairs are there in each row and there are atleast three rows.
5 ways.

3. There are 27 balls, of which 1 is heavier. given a balance how many times you need to weigh to find out the odd ball.
3 Weighs.

4. Product of three consecutive nos. 210. What is the sum of two least numbers
11.

5. If the area of the sqaure is increased by 69 % how much the length of the side will increase?
30%
6. if the sum of five consecutive nos. 35? how many prime nos are there :
2 primes.

7. if the length of the rectangle is reduced by 20% and breath is increased by 20 % what is the net change ?
4 % decrease
8. A question on sets.
There are some 20 Basketball players & 30 Football players, and 25 cricket players. 1 of them plays all the three games. 8 of them plays atleast two games. They are 50 altogether. How many of them plays none of the games.
9. A question on directions.
B is 20 miles east of A. D is 30 miles east of C. E is 10 miles

north of D. C is 20 miles north of B. How far E is from A?
Some 3 questions on Reasoning like,
10. If you say that giving stock options to employees increases the productivity of the company, which of the following sentences support it.
A) Giving stock options increases the morale of the employees
..
..
etc.,
11. Gamblers comes to the Amusement parks. There are some Amusement parks in each city. There are some gamblers in each city. So what can you infer.
A) Amusement park always have gamblers.
..
..
etc.,

2. Technical Questions.

i. Electrical & Electronics : 15 Questions
1.A Circuit with nand gates. (ans. may be XOR)

2.CMRR. relates to (options not in order)
voltage follower
non invering amplifier
inverting amplifier
integrator

3. Given a circuit , give the ouput.
(ans. may be triangular wave.)

4. o/p of an assembly code.
mulitply by 11.

5. how to handle asynchronous events.
a) polling
b) interrrupt
etc.

ii)Data Structures, Algo., & Complexity theory : 5 questions
iii) OS : 5 questions
iv) Networks and Hardware: 5 questions
v) Databases and Misc.: 5 questions
vi) C Pgm. : 5 questions
some more 10 questions.

1. if W is a sequence of strings without a and W' is its reversal
then WaW' is accepted by:

Context Free Grammmars

2. Whether all recusive pgm can be writtten iteratively?
yes.
3. What data structes you will use if you want to go to first record from
the last and vice versa?
doubly linked circular list

4. Given 10000 nos. and 48MB Memory. What is the complexity of the
efficient sorting algo.? (the algo. is not mentioned)
O(N)

5. Given a C code and ask what it does?
code was something similar to Bubble sort and that
particular code does the sorting in Desending order and the complexity
is O(n^2)(which is the next question).

6.
A code like this is given.
a. for(i=0;i<num;i++)
b. for(i=num;i>0;i--)
Assuming no code optimization and assume that the microprocessor
has flags etc. which one is correct.

b will execute faster.

7. If there are too many page faults what is the problem?

8. To ensure one pgm. doesnt corrupt other pgm. in a Multi-pgm enviornment
what you should do?

9. Which one you will use to implement critical section?
Binary Semaphore

10. Which one is not needed for Multi-processing. enviornment?
options are: virtual memory,security,time sharing,none of the
above.

11. Which one is not done by Data link layer ?
bit stuffing, LRC,CRC,parity check

12. Which one is not related to Data link layer?

13. Which one is not suitable for client-server application?
tcp/ip,message passing,rpc,none of the above.

14. What is SQL.
Procedural Relational DB Query Language.

15. Indexing in databases give you
options were like 1.efficient deleting and inserting
2.efficient deleting.
etc.
16. int a=1,b=2,c=3;
printf("%d,%d",a,b,c);
What is the output?
17. Scope of Static Variable .....
in a file.

18. for(i=0; i<=10;i++,printf("%d",i)); +- (+- is there in the questions)

20. Real Time Os should have
a)fast context switch
b)Virtual memory etc.

21. Messages are transferred in some E71 code, where after 7 bits of data,
1 bit of stopping data is to be transferred. what should be done.
options were like
a) send directly
b) send after encoding
etc.
22. There are three processes A, B, C. A sends data to B. B removes the
header stores it and sends the data to C. C returns it to B. B receives the
message, identifies the message and adds the header that was stored and
sends to A.B receives the messages from C such that atmost 'm' messages
B
are pending.
Identify the best Data Structure.

23. A question in compiler about the heap and stack allocation of memory.

24. struct
{
char a[3];

```
int b;
}x;
char *cp;
```

a) size of x is 7.
B
b)
c)
d) cp takes the size of a pointer.
(d) is the ans.

I am sending format of ORACLE. I just sent you Verifone(some questions)

ORACLE

section 2:

1. what is sparese matrices?. give (at least) two methods for implemetation rather than two dimentional array.
2.what are cheap locks/latches?.
3.what is two phase locking?. Name two locks.
4. What are volatile variables in C?. What is their significance ?.
5. will these two work in same manner

```
#define intp int *
typedef int * inpp;
```

6. what are binary trees?. what is its use?.
7.

Section 3 :

A). write header file containing functions used, etc (C),
problem is to maitain a Queue. user has to give size and type of Queue.
This problem is like this I don't remember exactly.
B). C++
1. What is polymorphism?
2. What is Inheritence?.
3. Mention four Object Oriented Programming Languages?>
4. Mention basic concepts of OOP.
5. What are messages in OOP?.
6. What is garbase collection?.
7.what is object?.
8. what is a class?.

section 4:

1. expand the following:
a.SEI b. ISO
2. what are different levels of SEI?.
3. What is significance of ISO?>
4. Expand the following:
a. WWW
b. HTTP
c. HTML
d. TCP/IP
5. what is Black box testing?.
6. explain the following:
1. white box testing
2. white box testing
3. boundary testing
4 stress
5. negative
6. system
7. unit
8.module
9.destructive

PART 1: APTITUDE - 10 Q.

1. X is taller than Y and Z is shorter than X. Which of the following statements would be most accurate ? (similar to this)

a) Z is taller than Y.
b) Z is shorter than Y.
c) Z is as tall as Y.
d) It is impossible to tell Z or Y is taller.

2. A man travels for 12hours 30min. He covers one-third of the journey by train at the rate of 60kmph and two-third of the journey by road at the rate of 30kmph. The distance traveled by him is:

3. Excluding stoppages the speed of a bus is 45 kmph. Including stoppages it is 42kmph. For how many minutes does the bus stop in two hour?

(All the options were under 10.)

4. The rates of working of A and B are in the ratio of 9:6. The number of days taken by them to finish the work would be in the ratio of:

5. The average of 5 consecutive numbers is n. If the next three numbers are also included,

the average will:

6. A family consists of a grand father, a father, a mother , five sons and their wives and each son has two son and one daughters. How many males are there in the family ?

7. If the number 423 is multiplied by another number and if the answer is 65589. In the above answer if the two 5's are wrong, what is the correct answer ? (similar with changed figures, not exactly this one.)

8. If a ship travels a distance of 20km upstream in 2 hours and downstream in 1 hour. How much time it takes to travel a distance of 30km in still water?

9. A sum 650 is divided among A, B, C. If 1/6th of A's share equal to 1/9th of B's share it also equal to 1/12th of C's share, what is the share of B?

10. The diameter of the driving wheel of a bus is 140. How many revolutions per min. must the wheel make in order to keep a speed of 66 kmph.

PART 3: COMPUTER SCIENCE SECTION – 20 Q.

1. Which of the following is used in n/w layer of osi model:

a) bridge b) router c) repeater d) none of those

2. internal fregmentation and external fregmentation are concepts of which memory management:

a) paged only
b) segmented only
c) paged and segmented respectively
d) segmented and paged respectively

3,4,5. Questions were on Boolean expression simplification of 3 variables. Those were very easy. applied k-map method and got the right answer within seconds.

6. in a paged memory, the page hit ratio is 0.35. time required to access a page in secondary memory is equal to 100ns.the time requiredto access a page in primary memory is 10ns. The average time required to access a page is: [similar with changed data, used the basic formula.]

7. in an another easy question, three processes were given with their burst time, time quantum was also given, so the question was to find the time in which second process will finish in round-robin scheduling policy.

8. one que. on binary tree search like should item must be in ascending or descending order while search.

9. one direct que. on RTOS.

10. one que. on MUTEX and critical section.

11.virtual memory
a) greater than physical memory
b) greater than physical address
c) less than physical address
d) equal to physical memory

12. to 19. question on data communication neither I attempted nor I remember as I'm an MCA and this protion was a minor, way back in 3rd sem.

20. a long question on probability.

PART2: PROGRAMMING SKILL – 20 Q.

There were 20 questions on "c".
We were asked to give the o/p of trickey codes of c language. It's hard to remember those codes. I can give only idea. Questions were from simple case control, looping constructs, recursion, arrays. some question were asked from bitwise operators. 2-3 theoretical multiple choice ques. were also asked. Not a single code of pointers.

Technical Questions: there are total 30 questions but I remember this much

1. Which one is called family tree.
2. virtual function and overloading
3. DHCP protocol
4. order of insertion and Heap sort
5. left recursion
6. find output: for(l=1;a<=l;a++)

cout<<++a; cout <<a;

7. DEBUG trigger (oracle)
8. in unrestricted session which system privilege mode is used (oracle)
9. NEXTVAL and CURRENTVAL in sequence (Oracle)
10. Unix system call ……like Var( )

11. OS 384 support which memory management
12.

Complexity to access name from the given double link list.

13. Which WAN network is suitable for the 100Km or m. distance network.
14. If duplicate segments , file are there in hardisk which is best for management

a) FAT
b) SAT

15. stop n wait protocol is associated with which layer.
16. find errors from the c and c++ codes.

Aptitude Questions:

1. Age problem
2. Time and distance
3. Coin
4. direction problem
5. (2n + 2 n-1/2 n+1 - 2n) what is gives if n = something
6. (10n -1) n>1 when is divisible by 11.
7. no divisible by 8
8. find the missing no. when it is divisible by some no.
9. Boat problem
10. Average

HUGHES(JADAVPUR)

try to read the basic theory of probability
1>what is fir
2>what is irr
3>a circuit is given u have to identfy it
ans clipper
4> 6 seater bench 3men 3 women
arrange them according to given condition
5>6red boll,5 yellow boll,5 green boll,4 white boll
ans 1>20c4
2>color blind 4!
6>in a room 50 persons
some with 50+
some with 50-
ans>can't be determind
7>unix program
ans c
8>m ball n box

equally distributed
ans m div n+1
9>a=2,b=2,c=2
a=a++ + b++ - c---a+b
ans a
10>use of tpmc
11>v.42 bis
ans fax protocol
12>use of tcp/ip header

13>what is 555 chip
14>sin(2*pi*200t)-cos(2*pi*300t)
find the frequency
15>1 ram =256k

HUGHES-04SECTION A:30 BITSSECTION B:20 BITSSECTION C:20 BITS
SECTION A IS COMPULSORYATTEMPT EITHER SECTION C OR SECTION B
FOR ELECTRONICS BACKGROUND,IT IS BETTER TO ATTEMPT SEC
BSECTION C:

1.an lead compensator zero is at Z=Zc, pole is at P=Pc
then the following is correcta.Pc >Zc,pc<0,zc<0b.c.
2. gain margin of g(s)h(s)=1/s(s+k);a. sqrt(1+k2)b.0c.infinityd.1
3.machestor code does not improvesA. clock recoveryb. bandwidth efficiencyc.
4.possion distribution is used fora. used in FSMb.
c.used for queuing delay system of mutually identical events of arrival
d. both a and c5. no.of filpflops for mod 11 countera.fourb.fivec.
6. no of comparators required for 4 bit parallel A/D comparatora. 4b. 16c. 15
d. none7. if even parity is used for parity generation, what is the
hamming distance(simple fig is given)ans:2
8. the code set is {00000,00111,11100,11011}
what is the error detecting and correcting capability?ans:2,1
9. operational amp characteristics following is correct:1. input impedance is 0
2. output impedance is infinity3. input impedance is infinity
4. gain is infinity which combinations are correct?
10. band pass signal having frequencies 2.5k and 4.5k?give thesampling freqa. 9k
b. 4kc. 4.5kd. 7k11. defination of avalanche diode multiplication
12. more no of ripples are present in the diagram?which is correct
a. lower order filterb. high order filterc.
13. if CPU have one interrupt pin and on to connect with external
devices with some priority?which type of the following is used?
a. parallel priority interruptb. daisy chainc. RS filpflopd.
14. one megabit file transfer, serially on 9600 baud one start bit and
two stop bits, then how much time it takes (approx)a. 4 hoursb. 2 hours

c. 20 minutesd. 2 minutes15. IEEE 802.5 isans: TOKEN RING
16. Code sequence is givenwhat is the error correcting distance?
17. bit stuffing used in HDLC Protocol forans: b is correct(read on text book)
18.19.20.section A AND B:(BOTH MIXED)1. If "AaBbCc" is passed to the char
char x(*a){a[0]?x(a+1):1;printf("%c",a[0]);return 1;}what will be the output?
2. f(*p) { p=(char *)malloc(6); p="hello"; return; } main() {
char *p="bye"; f(p); printf("%s",p); } what is the o/p? ans:bye
3. when the program counter is incremented in the instruction cycle
a. fetch cycleb. int cyclec. execuation cycled.
4. two sorted lists of n elements will take at least
fine the order of complexity?a. 2nb. n/2c. square(n)
5. logic diagram is given? find the expressionans: OR gate
6. question on JAVA stringans: string ends without a null character
7. cache access time is 100ns. main memory access time is 1000ns, hit ratio
is .9, find mean access time?ans :200ns
8. which is not suitable to find out IP addressans:ARP
9. about deadlock condition10. convert 41.6875 into binary
11. read about IP AND IPX12. read about NFS13. DHCP isa. for routing
b. for network address conversionc. for diagnosisd.14. execution phase can be
a. pipelinedb. no parallelism is possiblec. vector processingd.
15. In public key algorithm , A wants to send message to B .....
which key is useda. A public keyb. A private keyc. B public keyd. B private key
16. to prevent replay attacks in transmissiona. symmetric encoding
b. Asymmetric encodingc. for every exchange, key should be changed
17. virtual functionality is used in C++a. dynamic binding
b. if the derived func is present but base class not presentc.
18. if there are n nodes in a binary tree, how many null pointers arethere
ans:n+1;19. if heap sort contains n elements, no of comparsions required are
a. log(n)b. height of heap sortc.d.20. question on ICV(integrity check)
21. which of the following is efficient in terms of spacea. insertion sort
b. quick sortc. selectiond. both a and c
22. in 32 bit representation, the range of numbers in 2's complementform
ans :-2 to the power of 31 to 2 to the power of 31 minus 1
23. about normalization
24. socket is implemented in TCP Layer. which of the following is
related to TCP layerans: port number
25. in reentrant procedure, which should be not used for passingparameters?
a. passed by regb. by directc. by indirectd. by stack
26. which is related to threada. separate switching reg
b. " stackc. " address spaced.
27. flow control is used fora. congestion at receiverb.c.d.
28. 5 questions on DBMS are there
29. in global static variable , declartion in a filea. localization of scope
b. persistance of the value through out the filec.d.
30. in sorted table contains elements , which of the searching isfalse
a. hash tableb. binary searching

31. in demand paging overhead of context switching is more due to
a. copy processes from disk to memoryb. viceversac. to get associative table
d. swapping to the disk
32. when write through is better than write back(related to cachememory)
33. which is false when normalization is used?can't express
34. I :verification: are we doing right product
II: validation:are we doing product right a. I AND II ARE TRUE
b. I AND II ARE FALSE c. I TRUE AND II FALSE d. I FALSE AND II TRUE
35. A table contains less than 10 elements which one is fastesta. bubble sort
b. selection sortc. quick sort
36. about subroutine, precondition is false. what about post condition
a. post condition is not definedb. post condition is always truec.d.
37. When static variables are used, which one of the following isnot possible?
a. dynamic run timeb.c.38. in product of x and y, if(x=0|y=0)
y=1; else y=0; (not cleared)
what is cyclometric complexity? a. 3 b. 2 c. 1 d. 0
39. CREATE TABLE NEW AS SELECT BIG FROM EMP
The above SQL statement is correct or not? (question is not cleared)
40. path testing isa. white boxb. black boxc. installation test
d. environment test41. program is given?above algorithm represents what type of
search?a. binary searchb. interpolation searchc. sequential searchd.
(may be "b" is correct);
42. if x->y in a relation R, x1 and x2 are in x, y1 and y2 are in y
(question not cleared), about functional dependancya.x1=x2 and y1=y2b.c.
43. in a down loading from website ,which one is correct?
ans: check the byte code and indicate the error, if any.44. about UDP
one Address is given but that is not the state tablewhat will it do the packet
a. packet is discardedb. packet is sent to ethernet server
c. packet is sent to other addressd.45. in associated memory for fast accessing
which one is useda. single linked listb. double "c. hash tabled.

1) what a java interface not have ?
ans - instance variables
2) what is done with java code on a web-page
ans - downloaded and executed on ur pc
3) what is the order of deleting a node from a linked list given a ptr
to it
ans O(n) (since u have to traverse the list to reach the prev.
node)
3) what is RSA
4) how can A send a messageto B so that B knows its from A
ans A uses his private key so that B can use A's public key
5) what is the best sort in worst case
ans heap sort
6) what is the given sorting
ans selection (check it)

7) what can access protected memebers of a class
ans other classes of that program
8) what protocol is used by a machine to map an ip to hardware address
ans arp
9) what is the size of ipv6
ans 128 bits
10) what protocol has ping
ans icmp
11) how many keys are needed in symmetric and asymmetric crptography?
ans - i dont know
12) one on a right threaded tree
13) very easy k-map
ans i think its b)
14) very easy ckt
ans choice which has option : a&c are equivalent
15) what in unix doesnt have a fd
ans process (this was the first ques).

Regarding Hughes
paper they conducted two tests. Both were technical(no aptitude test). First one was compulsory for everybody. In second one could opt for electronics or computers. In all i suppose there were 50 questions.
I sent a request to my classmates to send me questions whatevery they could recall. Till now only one person has responded. I am sending those questions to you.

And just before interview you were supposed to fill up a performa which they call Behavioural Test. This was to check you interpersonal skills and socialising capabilities. Questions like - would you like to be elected leaders of organising committees, do you like peoply express their agonies to you, do you wish people be close to you type questions were repeated in one and the other form.

Interview was technical as well as personal. CGPA did count - it seems. They selected 8 people from here. BTW what's your current CGPA and what's the strength of your class. Do they come for B.Tech and M.Tech separatel as the case here is or it's all at once.

Questions :

1.If a precondition of a sub routine fails then
a. post condition fails as well
b. Post condition may fail
c. post condition is declared but now defined.

2. whatz the o/p of the following program

```
char * a= "AabbCc";
void x(char *a)
{
a[0] == 0 ? x(a+1):1;
printf("%c",*a);
return 1;
}
x(a);
```

a. AaBbCc
b. cCbBaA

3. What is DHCP used for?

4. There are 2protocols IP and IPX are running on top of Ethernet. Suppose a packet addressed to that ethernt card arrives, to which protocol the ethernet sends the packet?
1. It checks the payload of the frame and finds out the protocol type and despatches it to the right protocol
2. It fins out the protocol type that is mentioned in the ethernet frame.
3. despatches to both the protocol

5. What is the use of global static variable in C?

6. In which stage of the compilation the Macro in C are converted into Iline code? (this is not the exact Qn a slight variation of it)

7 In th

**********Hughes paper in DCE**********

All ques. had four options.

1- What is max. no. of hops in hypercube n/w with n (=2 ^ p) to go from one node to another ?
a. p
b. log p
c. n ^ 2
2- What is Kerberos ?
ans. Authentication Protocol.
3-In completely connected multiprocessor system with n processors , links will be of the order of
a. O(n ^ 2)

b. O(2 ^ n)
c. O(n/2)
4-When quick sort gives worst performance ?
ans. When elements are in order.
5- o/p of each sorting step of 8 elements was given and had to recognise which sorting algo.?
Ans. Bubble sort (Not Sure , Check it out)
6-In worst case ,which sort is best out of following sorts?
a.heap
b.selection
c.quick (ans.)
d. insertion
7-Three very simple gate circuits each having inputs A,B,C,D were
given and had to tell ,which two give same result ? (DeMorgan's Law was used in solving)
Ans was (a) &(c) (o/p of a & c was coming to be AB +CD)
8-K-map given,had to tell simplified function
Ans was perhaps AB+AD +AC+BCD

K-Map was
CD`
AB 0 0 0 0
0 0 1 0
1 1 1 1
0 1 1 1

9-What is Function Point ?
Ans. S/W estimation technique
10-p points to an integer. We don't want p to change value. In C, what declarations will we use?
A const int *p
b.int *p
c.int const *p
e. int* const p (perhaps ans.)
11-Diff between 2NF &3NF ?
Ans. D (last option)
12.Which does not use client server model ?
a. Email
b. Web access
c. C. Telephone call
d. N/w file system
13-In a pipeline having 3 stages, each having reliability of 0.9
,what is overall reliability of pipeline?
a. 0.9
b. 0.729
c. 0.81

14-2level cacheis there first level cache's access time is 100ns,second level cache's access time is 33ns & memory access time is 1000 ns
. Wh at is total memory access time ?
ans. 140 ns
15-In public key cryptography,Awillsend message to B
ans. Using B's public key
16-What does projection of a relation give?
Ans.gives vertical partition of relation corresponding to specified columns.
17-For disk or direct access storage, which is best ?
a. AVL
b. B-tree
c. Red tape ...
18-There is a tree with inorder threading Node B is inserted as left child of nade A. Node A already has right child . Where will the null ptr of B point ?
ans. Parent of A (perhaps)
19-There is a diskless workstation. Which will be the first protocol it will use ?
a FTP
b. ARP
c. HTTP
d. RARP
20-Compiler keeps which of following ?

ans. Symbol table
21- 'ping' command uses which protocol ?
ans. ICMP
22-Merge sort uses which technique?
Ans. Divide and Conquer
23-Program counter is incremented in
a. fetch (ans)
b. decode
c. execute
24-what does the following program do ?

```
f(int n)
{
int c;
while(n)
{
n&=n-1;
c++;
}
print c;
}
```

ans. Program prints the no. of set bits in no.
25-What is this called (char *) (*(*(*A[X]) ( ))) ( )
ans. Array of X pointers to a function returning pointer to functions that are returning pointer to

char (not sure)
26- For synchronisation in distributed computing, what should not be there ?
a. all machines are synchronised by a global clock
b. all systems should have their own clock (perhaps ans)
27-Java applet of a moving /waving file is running on one machine then it means
a.Java's executable code is downloaded and running on the m/c
b.A virtual X server is running on that m/c while the actual program is running on the web server.
28-What is in RSA algo. ?
a. First the session key is encrypted & then whole message is encrypted using RSA Algo.
b. Message is encrypted using RsA algo.
c. First Rsa algo is used &then encrypted with the session key.
29-What is dirty read?
a. Transaction reexecutes and gives diff. Results from the original execution
b. Read is done when the transaction is not yet committed

30-What is coupling ?
a. It tells the strength of interconnection between two program units.
b. It tells the strength of interconnection between twtrength of interconnection between two program units.
b. It tells the strength of interconnection between twwwtrength of interconnection between two program units.
b. It tells the strength of interconnection between twwwo program units and one program unit
31-Any n/w on the computer can have only
a. one domain &one IP
b. more than one domain & more than one Ip
c. one domain and more than one IP
d. more than one domain & one IP
32-Which one does not have file descriptor ?
a. process
b. keyboard
c. pipe
d. socket
33-What does CONNECT BY means
a.connect to a different databaser for retreival
b.arrange in tree ordered structure
34-In two phase commit protocol, why log is used during transmission &reception ?
a. To retrieve the status in case of crash
35-In which algo. Waiting time is minimun?
Ans, SJF
36-How many address bits are there in Ipv6
ans. 128 bits
37-During run time heap is managed by
a. a user process in kernel mode
b. A system process manages heap for all the processes

c. A system process for each process
d. A user process in user mode
38-In which of following search is efficient?
a. height balanced tree
b. Weight balanced tree
c. Binary tree
39.A ques. on resource relocation, sharing (I don't remember more
than this regarding this ques.)
40-some ques. options were sth like
a. transparency control
b. Migration control
c. Concurrency control
41-X:In DFD, input is converted into output by passing through various functional units
Y:DFD cannot be used in object oriented design
a. both X& y are correct
b. both X & Y are incorrect
c. X correct, Y incorrect
d. Xincorrect, Y correct
42-Where regression testing is used ?
a. Dynamic analysers
b. Loaders
43-For Java interfaces , what is true ?
a. Functions declarations are not given'
b. Variables are not declared
c. Instance variables are not used
44-In a linked list, we can delete a node in order of
a. 1
b. n
c. n ^ 2
45-If there are N people and we have to do symmetric & asymmetric
cryptography, how many keys would
be used in these cases respectively?
a. N & N ^ 2 (probably ans)
b. N ^ 2 & N
c. N & N
d. N ^ 2 & N ^2
46-The protected element of a class can't be accessed by
a. member functions of the same class
b. member functions of the derived class
c. member functions of any other class in the same program (Ans.)
47-NFS uses same file structure as unix
48-To solve an expression which of following trees will you use
?
a. postfix
b. infix

HUGHES
****
****
Source : iit k (this paper is got from rookee and same is given in iitk)
Dated :25/05/04

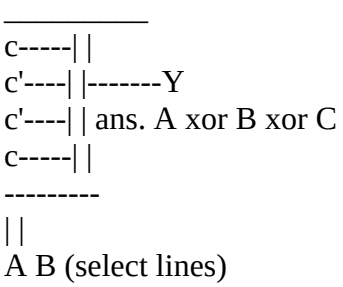
section A 30m (Compulsary)
section B or C 20 m(changed)m
Attempt either B or C sec B contains CST
C E&C
Better to attempt Electronics paper
(Those who are having electronics background)

SECTION A

1. Which of the folowing is not correct
a. (x+y)'=x'.y' b. (x'+y')'=x.y
c. (x'.y')'=x+y d. (x'+y')'=x'.y' [d]

2. Question on logic ckt. U have to find the output
ans. AB'+CD'+EF'

3. Output of MUX



4.If X and Y are two sets. |X| and |Y| are corresponding
coordinates and exact no.of functions from X to Y is 97
then
a. |X|=97 |Y|=1 b. |X|=1 |Y|=97
c. |X|=97 |Y|=97 d. .....

5. If two dies are thrown simultaneously what is the prob.
of one of the dice getting face 6 ?
a. 11/36 b. 1/3 c. 12/35 d. 1/36 [a]

6. The relation ,<,on reals is
a. a partial order because of symmetric and reflexive
b. ... antisymmetric and ....
c. not .... asymmetric and non reflexive

d. ... . not anti-symm and non reflexive

7. In C language the parameters are passsed by
a. values b. name c.referrence d....

8. Advantage of SRAM over DRAM
ans. faster

9. Diasy chaining related question (refer Z80)
a. uniform interrupt priority
b.non ....
c.interfacing slower peripherals
d.....

10. RAM chips arranged in 4X6 array and of 8kX4bit capacity each. How many address lines reqd. to access each byte
a. 12 b. 16 c.15 d. 17

11.Question related to AVL trees regarding how many no.of nodes to be changed to become balanced after addition of a leaf node to a particular node.
ans . 3

12.When following sequence is insertedin the binary search tree no.of nodes in left and right subtrees
52 86 64 20 3 25 14 9 85

13.Method used for Disk searching..
a.linked list b.AVL c.B-tree d. binary tree

14. Which of the following is correct statement.
a. 1's complement can have two zero re[resentations
b.2's ... ... represent an extra neg. number
c.2's & 1's have no difference in representing 16-bit no.
d.....

15. AX=B where A is mXn ,b&X are column matrices of order m
a. if m<n, X has infinite solutions
b.if m=n, rank of A <n then X has trivial solutions
c.... d....

16. The option avialable in C++, not C:
a.dynamic scoping
b.declaration in the middle of code block
c.seperate compiled and linked units
d. ....

17. int a[4]={1,2,3,4};
int *ptr;
ptr=a;
(a+3)=(++ptr)+(*ptr++);
A part of code is shown. The elements in A after
the execution of this code.
a.1 2 3 4 b. 1 2 3 6
c. compilation error d.1 2 2 4 [a]

18. Critical section program segment is
a. enclosed by semaphores with P & V operations
b. deadlock avoidance
c. where shared resources are accessed
d. ...

19. when head is moving back and forth, the disk scheduling
algorithm is _____
a) scan b) sstf c) fcfs d).....

20. how many times the loop will execute

LOOP LXI B,1526H
DCX B
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a)1526H times b) 31 c)21 d)38

21. the addressing mode in which the address of the operand is
expressed explicitly within the instruction
a)index addressing b)absolute c)indirect d) immediate

22. (A - B) U (B - A) U (A ^ C) = ?
where A,B are two sets A' , B' are compliments of A and B
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23. the network that does not use virtual circuit
a) IP b) X.25 c).... d).....

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26. cache access time 100 msec. main memory access time 800 msec
if the hit ratio is 95% , what is mean access time ...

27. the module that should be always reside in main memory is
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.... and some questions related to

1. addressing mode 2.assembler passes 3.linking and loading
4. file directory search 5. turning machine
6. finite state machine 7. daisy wheel

28. The order of algorithm to merge the two sorted lists of
lengths m and n is
a. O(m) b. O(n) c. O(m+n) d. O(log(m)+log(n))
29.A chocolate block is of 4 X 4 size.How many cuts are needed
to make 1 X 1 size blocks. No simultaneous vert. & horz. cuts.

30. Which among the following is not correct
a. O(n) > O(log n) .. likewise

Hughes paper:
total 50 questions (1 hour).
Paper is like GAte CS .

section A : compulsory for CS and Comm students.
section B : for CS only
section C : for comm only.

questions :

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. TCP/IP hdr checksum : what method is used ?
Ans. one's complement of sum of one's complement.

10. CSMA/Cd is used in which lan Ans. ethernet

11. 8085 pgm : LXI sp, 2021,
LXI b, 1234 (??)

push b

contents of stack after pushing ?

12. One question on synchronous transmission :

ans. Timing info is embedded in data itself
13. What for start bit is used in RS232 transmission.

14. 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.

15. 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
16. given a height balanced tree. If we add one more node , how
many nodes gets unbalanced ? Ans. 3

17. Given a arbitrary pointer to an element in a singly linked list?
what is the time complexity for its deletion . Ans. O(n)
18. 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 (??)
19. which one is false ?

a. 0<x<y, n power x = O(n power y)
b. root of log(n) = O(log logn)
c. O(logn/100) = O(100 logn)
d. 2n not = O(n power k);

Ans. b or a. (??)
20. S->S+S; s->s*s; s->a

how many parse trees possible : a+a*a+a Ans. 5
21. 4-1 demultiplexer is to be implemented using a memory chip.
how many address lines and word length required Ans. 4, 1

22. Vector intr mechanism. in 8085.

Ans. fixed locations in memory when an intr comes.
23. ARP is used for : Ans. IP to MAC addr conversion.
24. given 100 to 999 nos. Probability of picking a no. with out digit 7. Ans. 18/25.
25. Ten film rolls. 3 defective, prob. of picking up 2 defective rolls with out replacement Ans. 6/90
26. The purpose of hashing is :
Ans. O(1) complexity

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

Huges Placement Paper

Attempt either B or C sec B contains CST C E&C
Better to attempt Electronics paper (Those who are having electronics background)

Section A

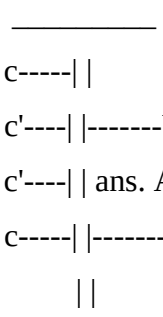
1. Which of the folowing is not correct

a. (x+y)'=x'.y' b. (x'+y')'=x.y

c. (x'.y')'=x+y d. (x'+y')'=x'.y' [d]

2. Question on logic ckt. U have to find the output ans. AB'+CD'+EF'

3. Output of MUX



A B (select lines)

4. If X and Y are two sets. |X| and |Y| are corresponding coordinates and exact no.of functions from X to Y is

97 then

a. |X|=97 |Y|=1 b. |X|=1 |Y|=97

c. |X|=97 |Y|=97 d. .....

5. If two dies are thrown simultaneously what is the prob. of one of the dice getting face 6 ?

a. 11/36 b. 1/3 c. 12/35 d. 1/36 [a]

6. The relation ,<,on reals is a. a partial order because of symmetric and reflexive

b. ... antisymmetric and ....

c. not .... asymmetric and non reflexive

d. ... . not anti-symm and non reflexive

7. In C language the parameters are passsed by a. values b. name c.referrence d....

8. Advantage of SRAM over DRAM ans. faster

9. Diasy chaining related question (refer Z80)

a. uniform interrupt priority

b.non ....

c.interfacing slower peripherals

d.....

10. RAM chips arranged in 4X6 array and of 8kX4bit capacity each. How many address lines reqd. to access each byte

a. 12 b. 16 c.15 d. 17

11. Question related to AVL trees regarding how many no.of nodes to be changed to become balanced after addition of a leaf node to a particular node. ans . 3

12. When following sequence is insertedin the binary search tree no.of nodes in left and right subtrees 52 86 64 20 3 25 14 9 85

13. Method used for Disk searching.. a.l inked list b. AVL c. B-tree d. binary tree

14. Which of the following is correct statement.

a. 1's complement can have two zero re[resentations

b. 2's ... ... represent an extra neg. number

c. 2's & 1's have no difference in representing 16-bit no.

d.....

15. AX=B where A is mXn ,b&X are column matrices of order m a. if m<n, X has infinite solutions

b.if m=n, rank of A <n then X has trivial solutions c.... d....

16. The option avialable in C++, not C:

a. dynamic scoping

b. declaration in the middle of code block

c. seperate compiled and linked units

d. ....

17. int a[4]={1,2,3,4};

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Section C

1. One question of Set Theory Like there Are two sets A and B and (A-B)union(B-A)union(A intersection B) is equivalent to Ans. A union B

2. Union and intersection are in there sign conventions.

3. One question of probability Like between 100 and 999 how many no have the prob that they does not contain 7

Ans. 16/25 (not sure u can check by own)

4. Of Newton Rapson method...

5. Of power set A set contains {(fi),a,{a,b}} what is the powerset of it Ans. 8

6. A question of logic gates Ans. U can got the answer very easily

7. A question on the Booths algo Ans. The sequence is

1010101010101010

8. Relative addressing mode is used for Ans. Dont

know.

9. For how many numbers there is no difference between little endian and

big endian

Ans. 256

10. For the multiplication of two 8 bit numbers how much ROM will be used

Ans. 64k*16 ROM(Check it)

11. Why direct mapping is not good for the mapping of Cache Memory.

Ans. Dont know

12. What is the main property of Desiy I/O Sytem Ans.

13. A question on the nyquist theorem

Ans. 18000 bps

14. What is the shannon theorem...

Ans. Refer to data communication(Stalling) book

15. CSMA/CD protocol is used in

Ans. Ethernet

16. What is the limitation of the Pulse Code Modulation

Ans. Refer to data communication book

17. In CSMA/CD

Ans. The Access to the channnel is probabilistic.

18. For an IP Router how many IP addresses

Ans. Check it i think Answer is Only One.

19. Which protocol u used when you want to know the IP address

corresponding to a MAC Address

Ans. RARP

20. Which part of the IP header is used for the time limit of the packet.

Ans. TTL

21. Which PageReplacement algo will give the best result

Ans. By replacing that page which has the next reference after a long time.(optimal algo)

22. What the code will be said when it is called by another part and it is not completed yet

Ans. Reentrant Code.

23. three questions on the simple programs

24. There is a sequence of no and prepare a binary tree and tell how many nodes are in the left and right sub tree.

Ans. Check it Ans (4,7)

25. hat is the rank of the graph

Ans. e-n+k

26. One question on the multithreading

27. Which traversal of the tree gives the node in the ascending order.

Ans. Inorder

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Ans. Inorder

29. What is garbage collector.