HCL Placement Paper 3

HCL TECHNOLOGIES INDIA PRIVATE LIMITED

HCL System Software Sample Test Paper

NOTE : This is a system paper and not application paper

Section 1- General Computer Concepts

1. Piggy backing is a technique for
a) Flow control
b) Sequence
c) Acknowledgement
d) retransmition
Ans. (c)
2. In OSI, terminal emulation is done in
(a) sessions layer
(b) application layer
(c) presentation layer
(d) transport layer
Ans: (b)
3.Bit parity check,when performed on a byte ,can catch
a)odd number of errors
b)even number of errors
c)any number of errors
d)none of the above
Ans: (a)
4. In signed magnitude notation what is the minimum value that can be represented with 8 bits
(a) -128
(b) -255
(c) -127
(d) 0
Ans: (c)
5. For 1 MB memory, the number of address lines required,
(a)11
(b)16
(c)20
(d) 24
Ans. (c)
6.For a 25MHz processor , what is the time taken by the instruction which needs 3 clock cycles,
(a)120 nano secs
(b)120 micro secs
(c)75 nano secs
(d)75 micro secs
Ans: (a)
7. Semaphore is used for
(a) synchronization
(b) dead-lock avoidence
(c) both a and b
(d) none
Ans. (c)
8. Which of the following involves context switch,
(a) system call
(b) priviliged instruction
(c) floating poitnt exception
(d) all the above
(e) none of the above
Ans: (a)
9.Virtual address are translated to physical
address by
(a)the process
(b)operating system
(c)MMU
(d)All of the above
(e) None of the above

10.convert the hexadecimal number 0xFEDB to the
octal
(a) 177333
ans: (a)

11. OLE is a mechanism
a)in UNIX for network communication
b)in INTERNET for communication between nodes
c)for communication between processes in a NT system
d)used as a network layer protocol in NT & Windows
systems

12. an internet IP address of a node
a)has to be unique only for the domain of the node
b)has to be unique in the node's sub-network
c)has to be unique in the country in which the node
is present
d)none of the above

13. There is an employee table with key feilds as employer no.data in every n'th row are needed for a sample. Which of the following queries will get required results.
a) select A employe no. from employe A , where exists (select (max (emp_no)))from employe B where A employe no. >= B employe having (count(*)
mod
n)=0
b) select employe no. from employe A, employe B where A.employe no.>=B employ no.group by employe no.having(count(*) mod n)=0)
c) both a& b
d)none of the above
ans: (d)

14. Type duplicates of a row in a table customer with non unique key feild customer no. can use
a) delete from costomer where customer no. exists(select distinct customer no. from customer having count)
b) delete customer a where customer no. in (select cust_no from customer b where a.cust_no=b.cust_no) and a.rowid>b.rowid
c) delete customer a where custermor no. in (select
customer no. from customer a, customer b group by
a.cust_no
having (count(*)>1) and a.rowid>b.rowid);
d) none of the above

15.which of the following is a feature of the ANSI C language and not present in Java?
a)forward referencing
b)variable length argument lists
c)volatile modifier
d)none of the above
ans: (b)
section 2 - C Programming
1.which of the following about the following two declarations is true
i) int *F();
ii)int (*F)();
a)Both are identical
b)the first is a correct declaration and second is wrong
c) the first declaration is a function returning a pointer to an integer and the second is a pointer to a function returning int
d)Both are different ways of declaring pointer to a function
ans : (c)

2.what are the values printed by the following program?
#define dprintf(expr) printf(#expr=%d\n",expr)
main()
{
int x=7;
int y=3;
dprintf(x/y);
}
a)#2=2 b)expr=2 c)x/y=2 d)none
ans (c)
3.which of the following is true of the following program
main()
{

```
char *c;
int *ip;
c=(char *)malloc(100);
ip=(int *)c;
free(ip);
}
```
a)the code functions properly by releasing all the memory allocated
b)results in compilation error as a pointer of various types cannot be equated
c)the program ties to free more memory than allocated and results in run time error
d) works well except when the machine runs low on memory and malloc is unabel to allocate the memory
ans : (d)

4.output
```
main()
{
int I;
char *p;
i=0x89;
p=(char *)i;p++;
printf("%x\n"p);
}
```
a)0x8c b)0x4566788A c)0x8A d)0x8B e)none

5.which of the following is not an ANSI c language keyword?
a)volatile b)function c)default d)const e)void
ans; (b)

6.when an array is passed as parameter to a function ,which of the following statement is correct
a)the function can change values in the original array
b)in c parameters are passed by value . the function cannot change the original value in the array
c)it results in compilation error.Array cannot be passed as a parameter to a function
d)results in runtime error when the function tries to access the elements in the array

7.the type of the controlling expression of a switch
statement cannot be of the type
a)int b)char c)short d)float e)none
ans (d)

8.value of (3^6)+(a ^a)=?
Ans :value=5

9. x= b>8?b<<3:b>4?b>>1:b;
ans: x=3

10.output:
```
main()
{
int n=2;
printf("%d %d\n"++n,n*n);
}
```
a)3,6 b)3,4 c)2,4 d)cannot determine
ans :(b)
11.output:
```
int x=0x65;
main()
{
char x;
printf("%d\n",x);
]
```
a)compilation error b)'A' c)65 d)undefined
12.output
```
main()
{

int a=10;
int b=6;
if(a=3)
b++;
```

```
printf("%d %d",a,b++);
}
```
a)10,6 b)10,7 c)3,6 d)3,7 e)none

13.main()
{

```
enum months {jan=1,feb,mar,apr};
months x=jan;
if(x==1)
printf("jan is the first month");
}
```
a)does not print anything
b)prints : jan is the first month
c)generates compilation error
d)results in runtime error

14.what is the output of the following program?

```
Main()
{
char *src="hello world";
char dst{100];
strcpy(src,dst);
printf("%s",dst);
}
strcpy(char *dst,char *src)
{
while (*src) *dst++=*src++;
}
```
a)"hello world" b)"hello" c)"world" d)NULL
e)undefined

15.main()

```
{
int i=6;
switch(i)
{
default: i+=2;
case 4;i=4;
case 5:i++;
break;
}
printf("%d",i);
}
```
a)8 b)6 c)5 d)4 e)none

16.main()

```
{
int x=20;
itn y=10;
swap(x,y);
printf("%d %d",y,x+2);
}
swap(int x,int y)
{
int temp;
temp=x;
x=y;
y=temp;
}
```
a)10,20 b)20,12 c)22,10 d)10,22 e)none

17.#define INC(x) x++

```
main()
{
int x=4;
printf("%d",INC(x++));

}
```
a)4 b)5 c)6 d)compilation error e)runtime error

18.struct node{
char *word;
int count;
struct node left;
struct node right;
};
a)incorrect definiton
b)structures cannot refer to other structrues
c)structures can refer to themselves.Hence the
statement is ok
d)structures can refer to maximum of one other structure

19.what is the size of the following union
union tag{
int a;
float b;
char c;
};
a)2 b)4 c)1 d)7
ans :(b)

20. main()
{
char s[]="hello world";
printf("%15.10s",s);
}
a)hello,.world...
b).....hello world
c)heloo,.wor.....
d)none of the above
ans: (b)

section C - analysing program segements

1)struct dlink{
int nodeid;
struct dlink *next;
struct dline *prev;
} dlink_t;
A pointer to the head of tha linked list is maintained as a global variable whose definition is dlink_t *head;
The function remove_element(dlink_t*rp), needs to remove the node pointed to by rp and adjust the head
The first node's prev and the last node's text are
NULL
remove_element (dlink_t *rp)
{
rp->prev->next =rp->next;
rp->next->prev =rp->prev;
if(head ==rp)
head =rp->next;
}
which of the following statement is true about the function remove_element
a)it works when head is the same as rp;
b)it does not work whe rp is the last element on the
list
c)it sets the head of the list correctly
d)it works in all cases

ans:(b)

2.#define NULL 0
char *
index (sp,c)
register char *sp,c;
{
do {
if(*sp==c)
return(sp);
}while (*sp++);
return (NULL);

}
The first argument sp,is a pointer to a C string. The second argument c is a character. This function searches for the character c in the string . If it is found a pointer to that location is returned ,else NULL is returned
This function works
a)Always
b)always but fails when the first byte contains the
character c
c)works when c is a non NULL character array
d)works only when the character c is found in the
string

3.main()
{
printf("%d\n",f(7));
}
f(x)
{
if(x<=4)
return x;
return f(--x);
}
a)4
b)5
c)6
d)7

4.on a machine where pointers are 4 bytes long,what
happens when the following code is executed
main()
{
int x=0 ,*p=0;
x++;p++;
printf("%d and %d\n",p);
}
a) 1 and 1 is printed
b) 1 and 4
c) 4 and 4
d) causes an exception

5.which is correct?

a)strcpy(char *dst,char *src)
{
while (*src)
*dst++=*src++;

}

b) strcpy(char *dst,char *src)
{
while (*dst++=*src++);
}

c) strcpy(char *dst,char *src)
{
while (*src){
*dst=*src;
dst++;src++;
}
}

d) strcpy(char *dst,char *src)
{
while (*++dst=*++src);
}

6. main()
{
int i=20,*j=&i;
f1(j);
*j+=10;

```
f2(j);
printf("%d and %d ',i,*j);
}
f1(k)
int *k;
{ *k+=15;}
f2(x)
int *x;
{ int m=*x, *n=&m;
*n+=10;
}
```
The values printed by the program will be
a)20 and 55
b)20 and 45
c)45 and 45
d)55 and 55
e)35 and 35
ans : (c)

7.
```
int
func(int x)
{
if(x<=0)
return (1);
return func(x-1)+x;
}
main()
{
printf("%d",func(5));
}
```
a)12 b)16 c)15 d)11

8.consider the following fragments of c code in two files which will be linked together and executed
a.c
```
int i;
main()
{
i=30;
f1();
printf("%d",i);
}
```
b.c
```
static int f1()
{
i+=10;
}
```

which of the following is true?
a)a.c will fail in compilation phase because f1() is not declared
b)b.c will fail in compilation because the variable
i
is not declared
c)will print 30
d)will print 40
d)a & b

9.
```
void
funca(int *k)
{
*k+=20;
}
void
funcb(int *k)
{
int m=*x,*n=&m;
*n+=10;
}
main()
{
```

```
int var=25,;
*varp=&var;
funca(varp)
*varp+=10;
funcb(varp);
printf("%d%d,var,*varp);
}
```
(a) 20,55(b) 35,35(c) 25,25(d)55,55
ans : (d)

```
9. #include <stream.h>
class x{
public :
int a;
x();
};
x::x() { a=10;cout<< a ;}
class b:public x {
public :
b(); x();
};
b::b() { a=20;cout<<a;}
main()
{
b temp;
}
```
what will be the output of the following program?
a)10 b)20 c)20 10 d)10 20

section 4 - General Aptitude Section

1. In a murder case there are four suspects
P,Q,R,S.
Each of them makes a statement . They are
P : I had gone to the theatre with S at the time of
the murder
Q: I was playing cards with P at the time of the murder
R: Q did not commit the murder
S: R is not the murdere Assuming that only one of the above statement is false and that one of them is the murderer,who is the murderer?
a)p

b)Q

c)R

d)cannot be concluded

e)S
2.Mohan earned twice as much and deep.Yogesh earned Rs.3/- more than half as much as deep.If the amounts earned by mohan,deep and yogesh are M,D and y respectively which of the following is the correct ordering of these amounts?
a)M<D<Y
B)M<Y<D
C)D<M<Y
D)it cannot be determined from the information given
e)D<Y<M

3.Statistics indicate that men drivers are involved in more accidents than women drivers.Hence it may be concluded that
a)sufficient information is not there to conclude
anything
b)men are actually better drivers but drive more
frequently
c)woment certainly drive more cautiously than men
d)men chauvinists are wrong about women's abilities
e)statistics sometimes present a wrong picture of
things

4.convert hex number 0xE78 to radix 7
ans : 13541

5.given that A,B,C,D,E represent one of the digits between 1 and 9 and that the following multiplication holds
ABCDE X4=EDCBA
Which digit does E represent?
a)4 b)6 c)8 d)7 e)insufficient data provided

6.HCL photocopying machine can make 10 copies every
4
seconds.
At this rate,how may copies can the machine make in
6
minutes?
a)900
b)600
c)360
d)240
e)150
ans : (a)

7. if a=2 , b=4 ,c=5 then
(a+b)/c - c/(a+b)=?
Ans : 11/30

8.10^2 (10 ^8 +10 ^8)/ 10^4=?
Ans : 2(10^6)

9.worker W produces n units in 5 hours.Workers V and W,working independently but at the same time produce n units in 2 hours. How long would it take V alone to produce n units?
Ans : 3 hr 20 min

10 . If q#0 and k=(rq/2) - s ,then what is r in
terms
of k,q ans s?
ans : 2(k+s)/q

1.A causes B or C ,but not both
2.F occurs only if B occurs
3. D occurs if B or C occurs
4.E occurs only if C occurs
5.J occurs only if E or F occurs
6.D causes G,H or both
7.H occurs if E occurs
8.G occurs if F occurs

11) if A occurs which of the following may occur?
I . F and G
II. E and H
III.D
a)I only
b)II only
c)III only
d) I & II & III
e)I & II or II & III but not both

12. If B occurs which must occur?
a)D
b)D and G
c)G and H
d)F and G
e)J
13. if J occurs ,which must have occurred?
a)E
b) Either B or C
c)both E & f
d)B
e) Both B & C

14. which may occur as a result of a cause not mentioned?
I.D

II.A
III.F
a) I only
b) II only
c) I & II
d) II & III
e) I , II & III

15. If E occurs which one cannot occur?
a)A
b)F
c)D
d)C
e)J

Qestions 16-20
Six knights - P,Q,R,S,T and U - assemble for a longjourney in two travelling parties. For security, eachtravelling party consists of at least two knights.The two parties travel by separate routs,northernand southern .After one month ,the routes of thenorthernand southern groups converge for a brief time and at that point the knights can if they wish ,rearrangetheir travelling parties before continuing, again in two parties along separate northern and southernroutes. Throughout the entire trip , the composition of travelling parties must be in accord with thefollowing conditions:
P and R are deadly enemies and although they may
meet briefly can never
travel together.
P must travel in the same party with S
Q cannot travel by the southern route
U cannot change routes

16. If one of the two parties of knights consists of P and U and two other knights and travels by the southern route, the other memebers of this party besides P and U must be
a)Q and S
b)Q and T
c)R and S
d)R and T
e)S and T

17.if each of the two parties of knights consists of exactly three members,which of the following is not a possible travelling pary and route?
a)P,S,U by the northern route
b)P,S,T by the northern route
c)P,S,T by the southern route
d)P,S,U by the southern route
e)Q,R,T by the northern route

18.if one of the two parties of knights consisits of U and two other knights and travels by the northern route,the other members of this party besides U must be
a)P and S
b)P and T
c)Q and R
d)Q and T
e)R and T

19.if each of the two parties of knights consists of exactly three members ,S and U are members of different parties and R travels by the northern routethen T must travel by the
a)southern route with P and S
b)southern route with Q and R
c)southern route with R and U
d)northern route with Q and R
e)northern route with R and U

20. if when the two parties of knights encounter oneanother after a month exactly one knight changesfromone travelling party to the other travelling party,that knight must be
a)P
b)Q
c)R
d)S
e)T