

2004

: () : ()

○ ○ ○ ○

(2)	.	(14) (70)	(140)		인
-------	---	---------------	---------	--	---

○ 가 . ○ 가 .
 ○ . ●
 ○ (=) . ●

1. (Bloom) . [6]

1-1. [] , < > ‘ ’
 1가 . (4)

_____ < > _____
 ‘ , “ ” .

[]

()			
		C	
()		C	

: : :
:

1-2. ‘ ’ . 1-1 []
] 3가 , , 1가 . (2)

_____ [‘ ’] _____
 _____ , _____
 _____ 가 _____ .

: :

○ : () ○ : ()

3. ICT

1가 , ICT 3가 . [5]

- :
- ICT :

4. . [4]

```

program main;
  var x, y, z : integer;
  procedure sub1;
    var x : integer;
    begin
      x:=2; y:=8;
      write(z);
    end
  procedure sub2;
    var z : integer;
    begin
      x:=5; z:=6;
      write(y);
      sub1;
    end
  begin
    x:=4; y:=7; z:=5;
    sub2;
    write(x);
  end

```

4-1. , 가
(procedure program) . (2)

- :
- :

4-2. , 가
(procedure program) . (2)

- :
- :

○ : () ○ : ()

5. [가] [], []

(binary tree)

[가]

1. (NULL)

2. LCHILD(),
 DATA(), RCHILD()

3. J , J
 DATA(J) , LCHILD(J) ,
 RCHILD(J)

4. INSERT (T, X) T
 X , INSERT (T, X)
 T

5. GETNODE(J)
 , J

[]

```

INSERT (T, X)
{
  J = T ;
  while (J != NULL) {
    if (X < DATA(J)) {
      P = J ;
      J = LCHILD(J) ;
    }
    else {
      P = J ;
      J = RCHILD(J) ;
    }
  }
  call GETNODE(J) ;
  DATA(J) = X ;
  LCHILD(J) = NULL ;
  RCHILD(J) = NULL ;
  if (T is NULL) T = J ;
  else if (X < DATA(P)) LCHILD(P) = J ;
  else RCHILD(P) = J ;
  return T ;
}

```

[]

20, 10, 15, 30, 25

[]가

. [5]

[]

: () : ()

○ ○ ○ ○

6. ANSI C

S

. [5]

[]

```

#include <stdio.h>
#define N 8
int S[] = {11, 33, 21, 45, 98, 63, 77, 80};
int findmax(int, int);
main()
{
    printf("The maximum value = %d\n", findmax(0, N-1)) ;
}

findmax(int low, int high)
{
    int mid ;
    int max1, max2 ;
    if (low == high) return S[low] ;
    else {
        mid = (low + high) / 2 ;
        max1 = findmax(low, mid) ;
        max2 = findmax(mid+1, high) ;
        if (max1 > max2) return max1 ;
        else return max2 ;
    }
}

```

6-1. , findmax 가 . (3)

6-2. $N = 2^k$ ($k \geq 0$) , findmax 가 . (2)

○ : () ○ : () ○

7. W, X, Y, Z (relation) R V, W, A, Y S
 [] .
 []

R				S			
W	X	Y	Z	V	W	A	Y
w ₁	x ₁	y ₂	z ₁	v ₂	w ₁	a ₇	y ₃
w ₂	x ₁	y ₃	z ₄	v ₇	w ₁	a ₃	y ₂
w ₃	x ₂	y ₃	z ₂	v ₃	w ₃	a ₁	y ₃
w ₄	x ₃	y ₂	x ₁	v ₈	w ₂	a ₁	y ₂

R S ,
 가 , . [5]

7-1. R S (relational algebra) (natural join)
 (degree) (: cardinality) . (3)

- (degree) :
- (: cardinality) :

7-2. R S .

() : S W Y (project)	< >	() : R W Y (project)
-----------------------	-----	-----------------------

() () (difference)
 (() - ()) . (, '-') (2)

[]

: () : ()

○ ○ ○ ○

8. TEACHER TEACHER 가 .

<pre>CREATE TABLE TEACHER (TID CHAR(6) NOT NULL, NAME CHAR(20), DEPT CHAR(20), AGE INTEGER, PRIMARY KEY (TID));</pre>	<pre>TID : NAME : DEPT : AGE :</pre>
---	--------------------------------------

TEACHER 가 ' ' , , (tuple)
 (view) CT SQL . (, CT
 TNO(), TNAME(), STATUS() .) [3]

```
CREATE
SELECT
FROM TEACHER
WHERE ;
```

9. 가 1K 0.5M 9000 A가
 가 . (Page Management Table)

(, (0) 0 , 0
 가 .) [6]

	0	1	2	3	4	5	...
*	1	0	1	0	1	1	...
	22		6		?	15	...

* 가
 (1 : , 0 :)

9-1. A , . (2)

- :
- :

9-2. A 2407 () , 가 8451 가
 4355 4 . (4)

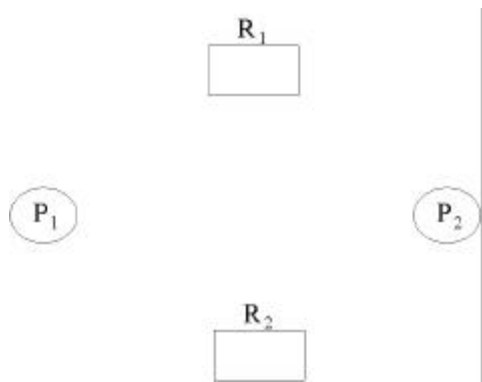
- :
- :

○ : () ○ : () ○

10. . [5]

- : P_1, P_2 (, P_1, P_2) - : R_1, R_2
 - : $R_1(3), R_2(2)$
 - A : ($A_{ij} : R_j P_i$)
 - B : ($B_{ij} : P_i$ 가 R_j)
 $A = \begin{bmatrix} 2 & 1 \\ 1 & 1 \end{bmatrix}$ $B = \begin{bmatrix} 0 & 1 \\ 1 & 1 \end{bmatrix}$ 1 i 2, 1 j 2

10-1. . (3)



10-2. , 가 (deadlock) . (2)
 , 가 17가 40 .

- :
- :

11. 14 "C3" ASCII , .
 'C', '3' ASCII 67, 51 . [4]

11-1. 가 7 "C3" (checksum) . (2)

11-2. CRC(Cyclic Redundancy Check) $x^3 + 1$ "C3" 3 CRC .
 (2)

: () : ()

○ ○ ○ ○

12.

: op I address

I()가 1 (indirect address), 0 (direct address) 가 .
 (op) [] .

[]

(op)	
CALL	M[AR]←PC, PC←AR+1
LDA	DR←M[AR], AC←DR
RET	PC←AR
STA	M[AR]←AC

100 CALL 0 200 (subroutine) 201 .
 PC , AR (operand) , DR 가 .
 AC (accumulator) M[a] a . [4]

12-1. CALL 0 200 가 200 10 . (2)

12-2. [] . (2)

13. 84-2-1(842'1') BCD . A, B, C, D
 W, X, Y, Z . W=AB+AC'D' , X, Y, Z (Sum of Products)
 . (, (term) 가 가
 .) [6]

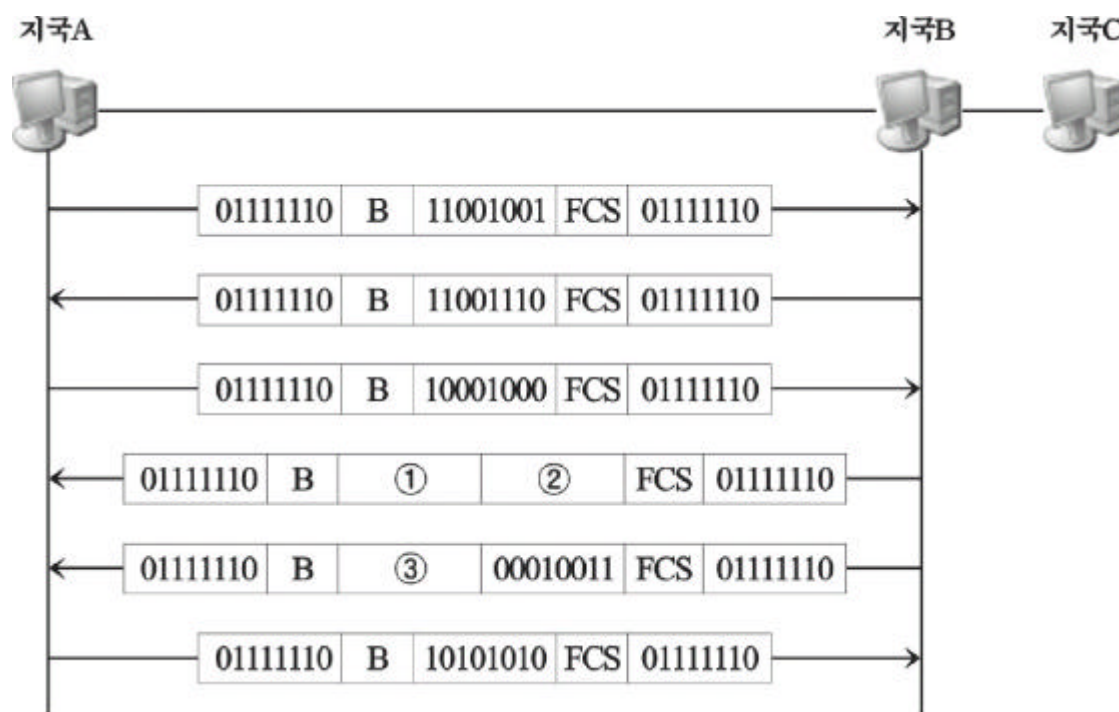
X=

Y=

Z=

○ : () ○ : () ○

14. HDLC(High-level Data Link Control)



B 2 [] , A . <가 > , , . [6]

<가 >
 B (control) , (information) .
 가 .

[]

: 10111110
 : 00010011

:
 :
 :