

(1) 、【10%】

- (a). 寫出下列16進位的結果： $5A+16C$ 。
- (b). 令 $X_{(2)}=12.012_{(3)}$ ，求 X 至小數點以下第三位。

(2) 、【10%】

What problems arise when we represent an ordered list by a contiguous data structure?

(3) 、【10%】

Given an array $A(20,100)$ stored in row major order, find the address of the element $A(7,25)$, given that the location of $A(1,1)$ is 80.

(4) 、【10%】

Consider the following linked list :



Where T is a pointer to the beginning of the list and each node contains two fields $DATA$ and $LINK$. What is the result of applying the following algorithm to the list (i.e. draw the resulting list) ?

```
P ← T
WHILE DATA (P) ≠ "BIRD"
DO
  P ← LINK(P)
END
Q ← LINK(P)
LINK(P) ← Q
```

(5) 、【10%】

- (a). Given an expression for the number of passes required to sort a list of N items using the two way merge sort.
- (b). How much storage is required to sort N items using the two way merge sore?

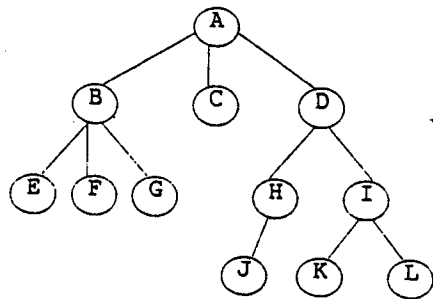
(6) 、【20%】

解釋下列名詞：

- (a). Index
- (b). Buffer
- (c). Hashing
- (d). Auxiliary memory

(7) 、【10%】

Give the binary tree representation of the following tree :



(8) 、【20%】

「程式設計」，由鍵盤上依序輸入十二個月份的名稱，如(a)所示；然後將輸入的十二個月份名稱，印出如(b)所示。

針對本問題，試說明一個方法或步驟，然後任選一種高階語言，根據您的方法或步驟，撰寫一個程式。

JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER

(a)輸入形式

J	F						S			
A	E						E		N	D
N	B					A	P	O	N	D
U	R	M	A			U	T	C	O	C
A	U	A	P		J	J	G	M	T	V
R	A	R	R		M	U	U	B	O	E
Y	R	R	I		A	N	L	B	B	B
	Y	H	L		Y	E	Y	E	R	E
								R	R	R

(b)輸出形式