UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2012/ 2013

COURSE NAME	:	DATA STRUCTURE
COURSE CODE	:	BIC 10404
PROGRAMME	:	1 BIS/ 1 BIE/ 1 BIW/ 1 BIM
EXAMINATION DATE	:	JUNE 2013
DURATION	:	2 HOURS AND 30 MINUTES
INSTRUCTION	:	ANSWER **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

SECTION A
Instruction: State **TRUE (T)** or **FALSE (F)**.

Q1   Declaring `struct` in programming can combine a few variables with different data type and can be referred with same name.

(1 mark)

Q2   Sequence Searching and Binary Searching are success when the data are in ascending order.

(1 mark)

Q3   Both processes of inserting or deleting data in a queue are applied in the head or tail of linked-list.

(1 mark)

Q4   Double linked-list allows the programmer to access the data in the next node or previous node.

(1 mark)

Q5   Binary trees must have balance number of node between left and right sub-tree.

(1 mark)

SECTION B

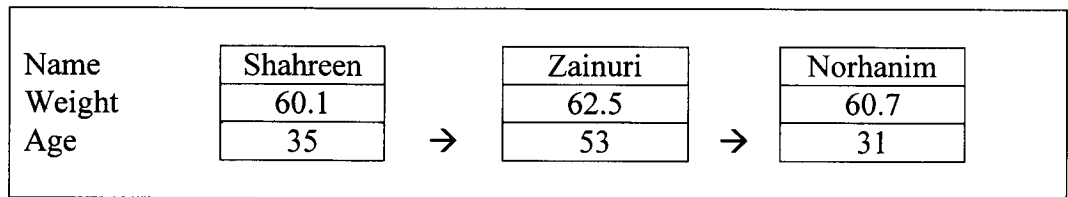Q6   Given the information of lecturers as below.

Name	Shahreen		Zainuri		Norhanim
Weight	60.1		62.5		60.7
Age	35	→	53	→	31

FIGURE Q6

(a)   Write the *struct* structure to store data in *myLecture* linked-list as in **FIGURE Q6**.

(10 marks)

(b)   Write a segment of C code to list out the lecturer's age more than 50 years old.

(10 marks)

Q7   Given the declaration of data as below.

```
int data[ ] = {4, 3, 45, 13, 67, 34, 55, 78, 99, 10};
```

(a)   Show the steps to sort the data in ascending order by using Bubble Sort.

(10 marks)

(b)   Based on the result in **Q7(a)**, show the steps using Binary Searching technique to find the number 50.

(10 marks)

Q8   Consider the following specification of a graph G.

```
V(G) = { 4,3,2,1 }

E(G) = {( 2,1 ),( 3,1 ),( 3,3 ),( 4,3 ),( 1,4 )}
```

(a)   Draw an undirected graph.

(10 marks)

(b)   Draw its adjacency matrix.

(10 marks)

Q9   Given a list of data as below.

          k,   m,   n,   a,   c,   p,   o,   s,   b,   i

(a)   Write an algorithm to Insert Node in Binary Trees.

(10 marks)

(b)   Draw Binary Trees.

(10 marks)

(c)   Write the output for In-Order Traversal.

(5 marks)

(d)   Write the output for Pre-Order Traversal.

(5 marks)

(e)   Redraw the Binary Trees if the node n was deleted.

(5 marks)

- END OF QUESTION -