NOTE: This tutorial does not carry any weightage. However it will help you prepare for the Quiz next week. So do attempt these questions now (in-class), sincerely and individually (no discussion). Answers will be discussed after you submit your responses.

Write your Roll Number here: ______________________

Q1: Trace code: Show the final memory configuration and output of the following program.

```c
struct node { int num; node * next; };  

int main() {  
    node *p, *q, *r;  
    p = new node;  
    r = p;  
    for (int i=0; i<3; i++) {  
        q = new node;  
        q->num = i; q->next = 0;  
        p->num = i*2; p->next = q;  
        p = q;  
    }  
    cout << p->num << q->num << r->num;  
}
```

Q2: Debug code: Consider a linked list of node as defined above. Your friend wrote the function below to find the smallest 'num' in the linked list. The program is not working correctly. Identify the bug and fix it. An example for testing is given below.

```c
int findSmallest(node* head) {  
    int smallest = head->num;  
    node* curr = head->next;  
    while (curr != 0) {  
        if (curr->num < head->num) smallest = curr->num;  
        else curr = curr->next;  
    }  
    return smallest;  
}
```

Q3: Write code: Write a function that finds a given item in a linked list and returns the address of that item. First write down the pseudo-code (logic for your function), then write the C++ code.

```c
node* find(node* head, int item); //returns a pointer to the node containing item in the linked list starting at head
```