CS1356 Introduction to Information Engineering

Quiz 10, 2010/12/20

Your name_____ Student ID_____

1. Please use the following statements to complete the stack implement (6*10%)

(a) return true
(b) return false
(c) IsEmpty() is true
(d) IsEmpty() is false
(e)Array[Top] = input
(f)return Array[Top]
(g) Top = Top – 1
(h)Top = Top + 1

```
InitStack()
{
    Top = -1;
}
IsEmpty()
{
    If Top is -1 then
        (1) ___(a)___
    Else
        (2)___(b)___
}
```

```
Push( input )
{
    Top = Top + 1;
    (3)___(e)___
}
Pup()
{
    If (4)___(c)___then
      Return “stack is empty”;
    Else {
      (5)_____
      (6)_____}
}
```

The correct answers are:
(5) Top = Top-1
(6) return Array[**Top+1**]
Because there is no such option, points will be given if your answers are any two of (f), (g) or (h).

2. A circular queue implementation uses an array of size 5. **Head** is the index of the **earliest element** in queue, and **tail** is the index that the **next input should be placed** in queue. Suppose that **number of elements in queue is 3,** and **head is 1, tail is 4**. Answer the following questions. (Two questions are independent.)

0	1	2	3	4
	Eva	David	Bob	

(1) What the elements in array, the value of head and the value of tail are after (a)(b)(c)(a)?
(a) Dequeue (b)Enqueue(Wood) (c) Enqueue(Mary) (3*10%)

0	1	2	3	4
Mary			**Bob**	**Wood**

Head = 3
Tail = 1

(2) Use the following **pre-defined statements** to print **“Bob David Eva”**: (10%)
(a)Temp=Dequeue (b)Enqueue(Temp) (c)print Temp

a, b, a, b, a, c — print “Bob”
a, b, a, c — print “David”
a, c — print “Eva”