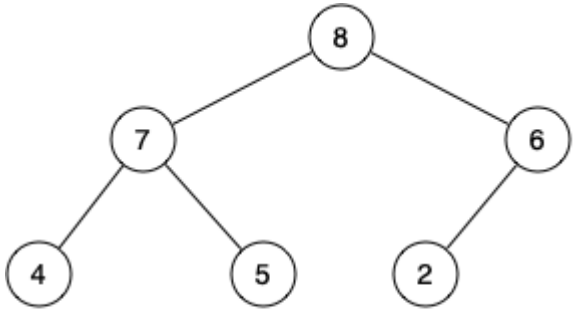
Quiz 6

Deadline	Friday, 24 July 2020 at 11:59PM
Latest Submission	Friday, 24 July 2020 at 3:41PM
Raw Mark	4.00/4.00 (100.00%)
Late Penalty	N/A
Final Mark	4.00/4.00 (100.00%)

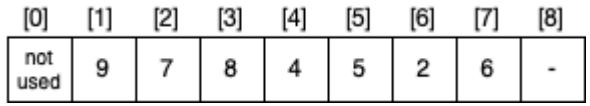
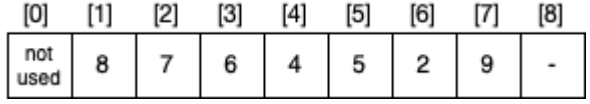
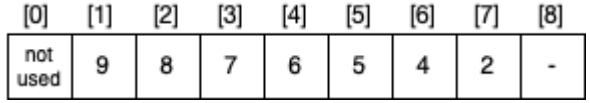
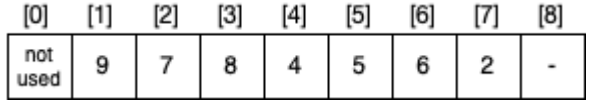
Question 1 (1 mark)

Consider the following heap and its array representation



[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
not used	8	7	6	4	5	2	-	-

If the value 9 is inserted into this heap, what does the updated array look like?

(a)	
(b)	
(c)	
(d)	
(e)	None of the above.

✔ Your response was correct.
Mark: 1.00

Easy to work out if you insert 9 into the tree and then shift it up (fixUp()).

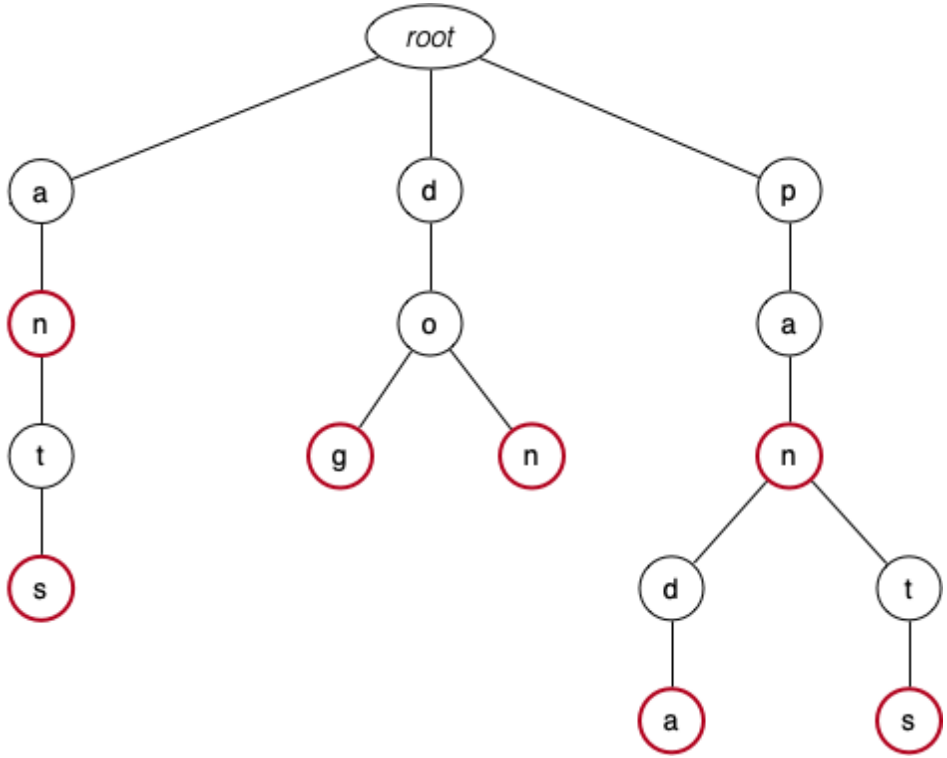
Question 2 (1 mark)

What is the trie resulting from inserting the following keys into an initially empty trie, in the order given?

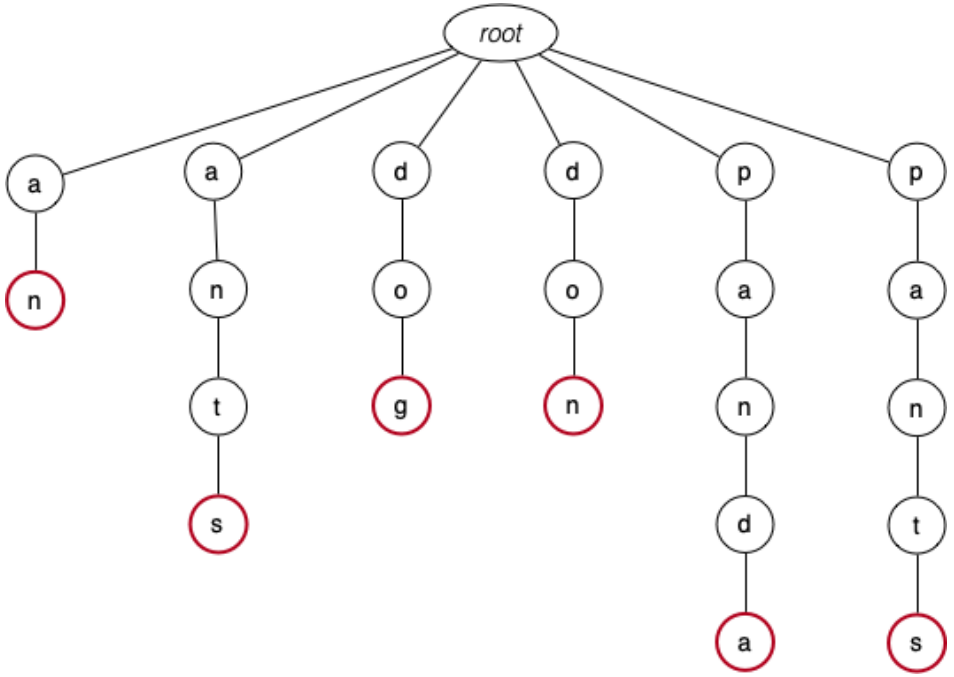
```
ants
pants
panda
dog
an
pan
don
```

Finishing nodes are shown in the tree in **red**.

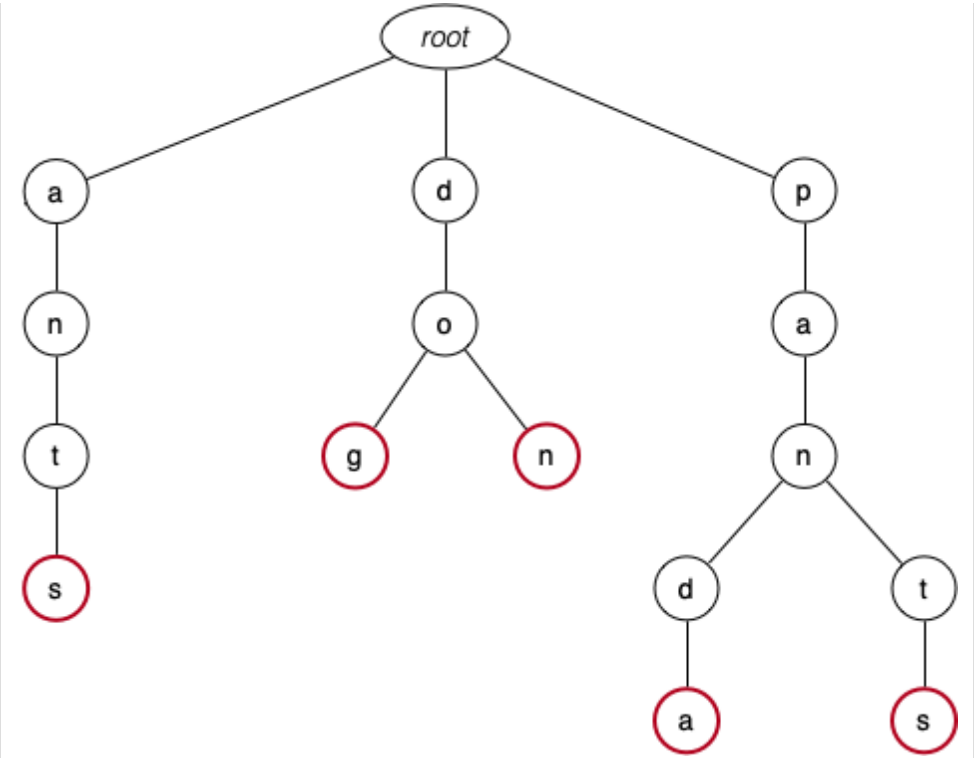
(a)



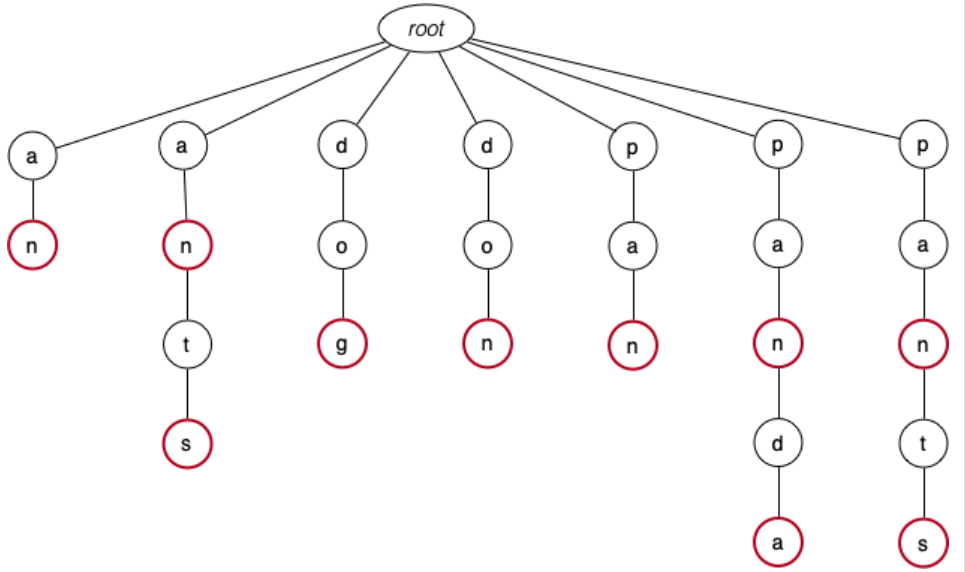
(b)



(c)



(d)



(e)	None of the above

✔ Your response was correct.
Mark: 1.00

Question 3 (1 mark)

If we have an initially empty linear-probed hash table with 7 slots, and a with a hash function

```
int hash(int n) { return (n % 7); }
```

what is the final state of the table after the following values:

```
10  5  7  3  14  12
```

are inserted in the order given?

Empty entries in the hash table are indicated by a value of '-'.

(a)

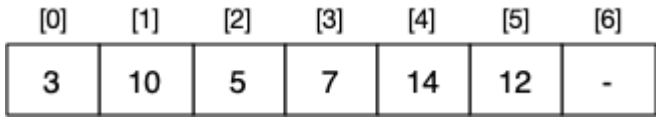
[0]	[1]	[2]	[3]	[4]	[5]	[6]
10	-	12	3	14	5	7

(b)

[0]	[1]	[2]	[3]	[4]	[5]	[6]
12	7	2	10	3	5	-

(c)

[0]	[1]	[2]	[3]	[4]	[5]	[6]
7	14	-	10	3	5	12

(d) ○	
(e) ○	None of the above is correct

✔ Your response was correct.
Mark: 1.00

Question 4 (1 mark)

What has value is returned by the following hash function

```
int hash(char *key, int N) {
   int i;  char *c;
   unsigned int h = 127;
   for (i = 0, c = key; *c != '\0'; i++, c++)
      h *= (*c + i);
   return h % N;
}
```

if it is invoked as

```
hash("2521", 42)
```

Assume that `unsigned int` values are 32-bits long.

(a) ○	0
(b) ○	1

(c)	14
(d)	24
(e)	None of the above is correct

✔ Your response was correct.
Mark: 1.00