

COMP 251  
MIDTERM II  
MARCH 10, 2020

SCORE

YOUR NAME

YOUR ID.

(i)

(ii)

(iii)

(iv)

QUESTION 1

3

5

6

7

QUESTION 2

XXX: return 0

YYY:  $m \leftarrow \lfloor (i+j)/2 \rfloor$

left[m]  $\leftarrow$  maketree(i, m-1)

right[m]  $\leftarrow$  maketree(m+1, j)

return m

QUESTION 3

XXX:  $x \leftarrow$  DEQUEUE(Q)

if left[x]  $\neq$  nil

then position[left[x]]  $\leftarrow$  position[x] + (-1)

if position[REAR(Q)] = position[left[x]]

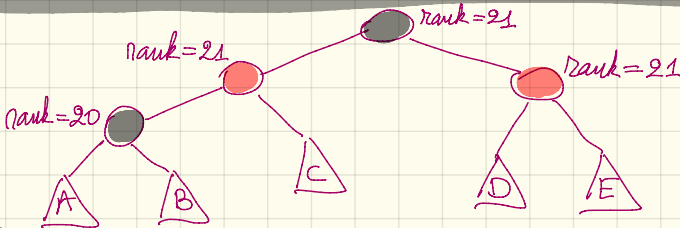
then return "false"

else ENQUEUE(left[x], Q)

if right[x]  $\neq$  nil then position[right[x]]  $\leftarrow$  position[x] + (1, 1)

ENQUEUE(right[x], Q)

QUESTION 4





YOUR NAME :

QUESTION 5

XXX: return  $1 + \text{size}[\text{left}[t]] + \text{number}(\text{right}[t], k)$

YYY: return number( $\text{left}[t], k$ )

QUESTION 6

(i)

T

(ii)

F

(iii)

F

(iv)

$m-1$

(v)

$\lfloor \frac{i+k-2}{k} \rfloor$

(vi)

21, 22, 23

(vii)

smallest

second

third

largest

B

A

D

C

(viii)

$\frac{1}{3}$

(ix)

$\frac{1}{5}$

(x)

$\frac{8m+1}{9}$

(xi)

10