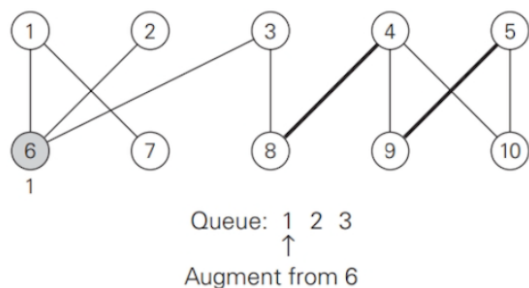
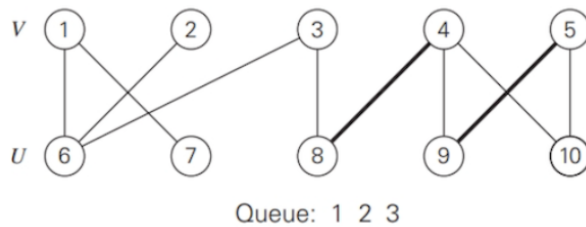


Day 31 Worksheet

```

while not Empty( $Q$ ) do
   $w \leftarrow$  Front( $Q$ ); Dequeue( $Q$ )
  if  $w \in V$ 
    for every vertex  $u$  adjacent to  $w$  do
      if  $u$  is free
        //augment
         $M \leftarrow M \cup (w, u)$ 
         $v \leftarrow w$ 
        while  $v$  is labeled do
           $u \leftarrow$  vertex indicated by  $v$ 's label;  $M \leftarrow M - (v, u)$ 
           $v \leftarrow$  vertex indicated by  $u$ 's label;  $M \leftarrow M \cup (v, u)$ 
        remove all vertex labels
        reinitialize  $Q$  with all free vertices in  $V$ 
        break //exit the for loop
      else //  $u$  is matched
        if  $(w, u) \notin M$  and  $u$  is unlabeled
          label  $u$  with  $w$ 
          Enqueue( $Q, u$ )
        else //  $w \in U$  (and matched)
          label the mate  $v$  of  $w$  with  $w$ 
          Enqueue( $Q, v$ )
  return  $M$  //current matching is maximum
  
```



```

while not Empty( $Q$ ) do
   $w \leftarrow \text{Front}(Q)$ ; Dequeue( $Q$ )
  if  $w \in V$ 
    for every vertex  $u$  adjacent to  $w$  do
      if  $u$  is free
        //augment
         $M \leftarrow M \cup (w, u)$ 
         $v \leftarrow w$ 
        while  $v$  is labeled do
           $u \leftarrow$  vertex indicated by  $v$ 's label;  $M \leftarrow M - (v, u)$ 
           $v \leftarrow$  vertex indicated by  $u$ 's label;  $M \leftarrow M \cup (v, u)$ 
        remove all vertex labels
        reinitialize  $Q$  with all free vertices in  $V$ 
        break //exit the for loop
      else //  $u$  is matched
        if  $(w, u) \notin M$  and  $u$  is unlabeled
          label  $u$  with  $w$ 
          Enqueue( $Q, u$ )
    else //  $w \in U$  (and matched)
      label the mate  $v$  of  $w$  with  $w$ 
      Enqueue( $Q, v$ )
return  $M$  //current matching is maximum

```

