CSE 310 Recitation 10

Objectives:

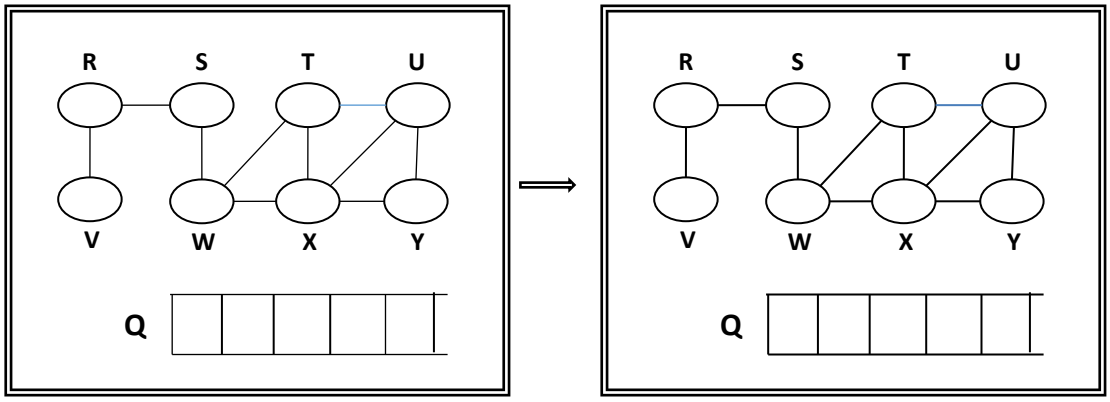
1. Breadth-First-Search Algorithm
2. Depth-First-Search Algorithm

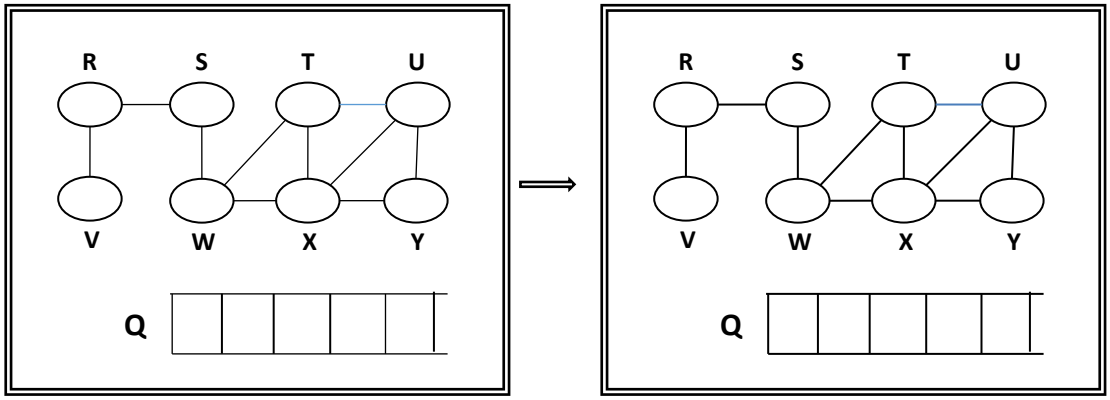
Rules:

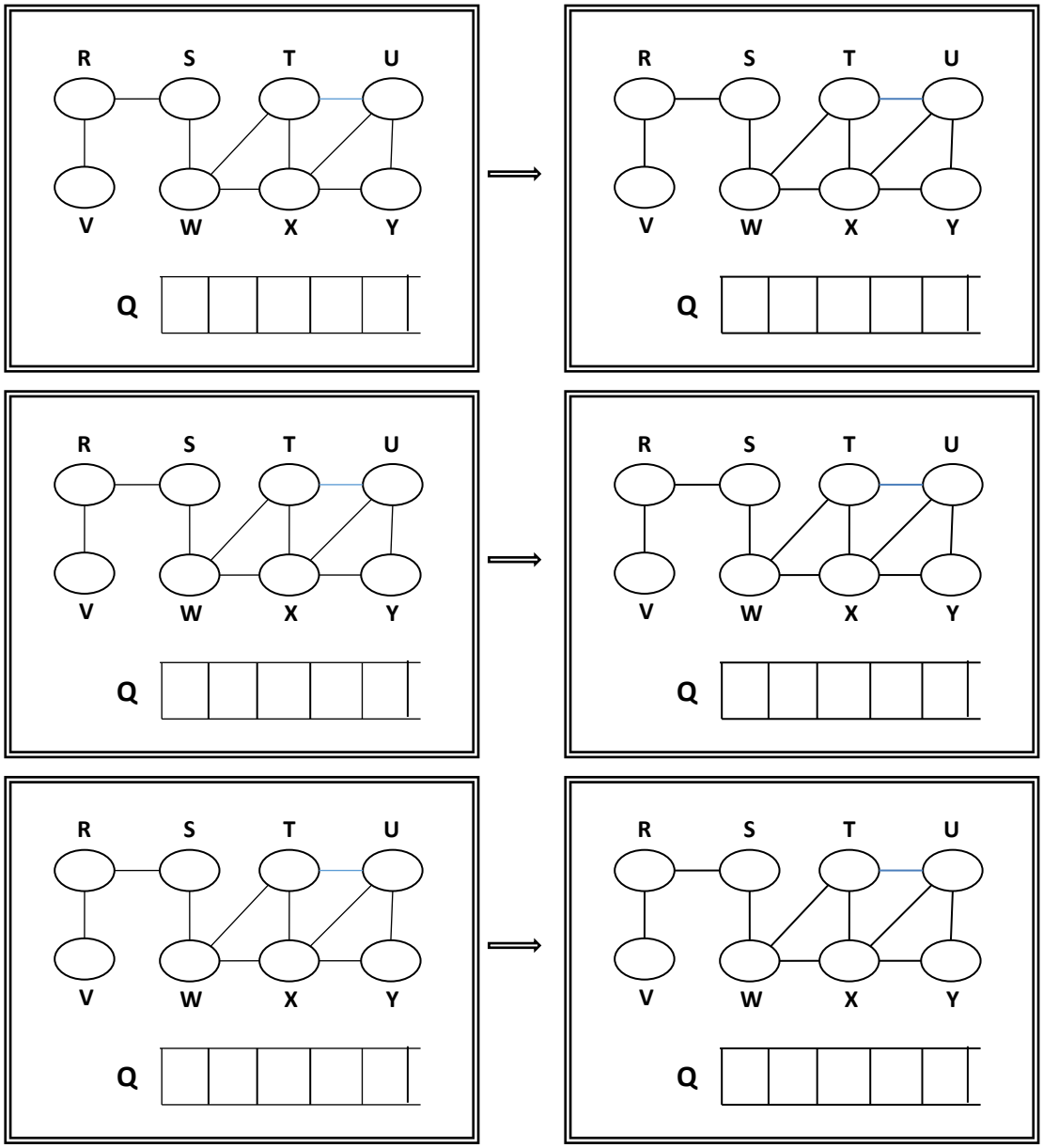
1. Except for diagrams, charts or tables, answers MUST be provided in typed form.
2. For grading purposes, do NOT just submit the answers, instead copy each question, and put your answer under it. Unreadable and unclear answers will be graded with 0 points.
3. Submit your recitation on Canvas as a single PDF file.
4. For each recitation, you have 2 attempts to submit, but we will ONLY grade your last submission! It's your own responsibility to make sure that you submit the correct file! We will not accept any submissions through email.
5. Equipment defects and technological difficulties cannot become excuses for late submission. No late submissions will be accepted!

Question

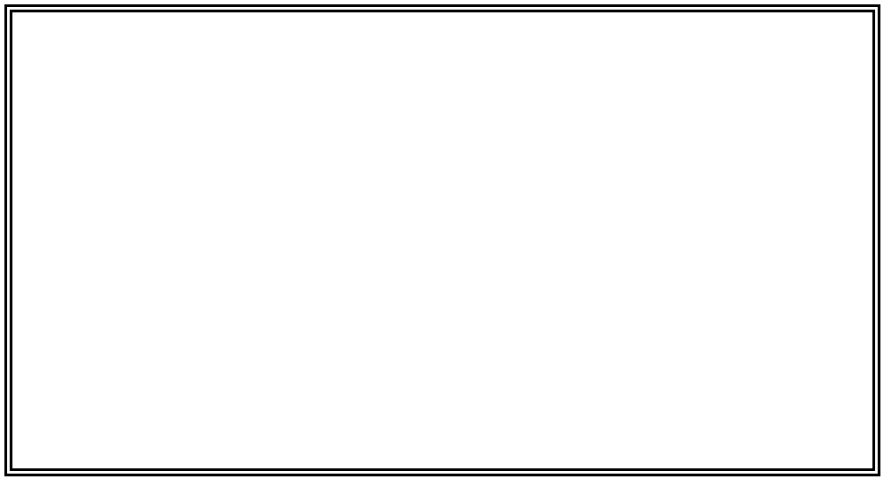
1. [4 pts] Show how breadth-first search works on the following graph. Assume ***u*** is the source vertex and the adjacency list is ordered in alphabetical order. Write (W/G/B) next to each vertex to indicate White/Gray/Black color accordingly, also mark the Q (queue) contents clearly. At the very end, draw the breadth-first search tree. (See Fig. 22.3 on textbook pp.596 for such an example)



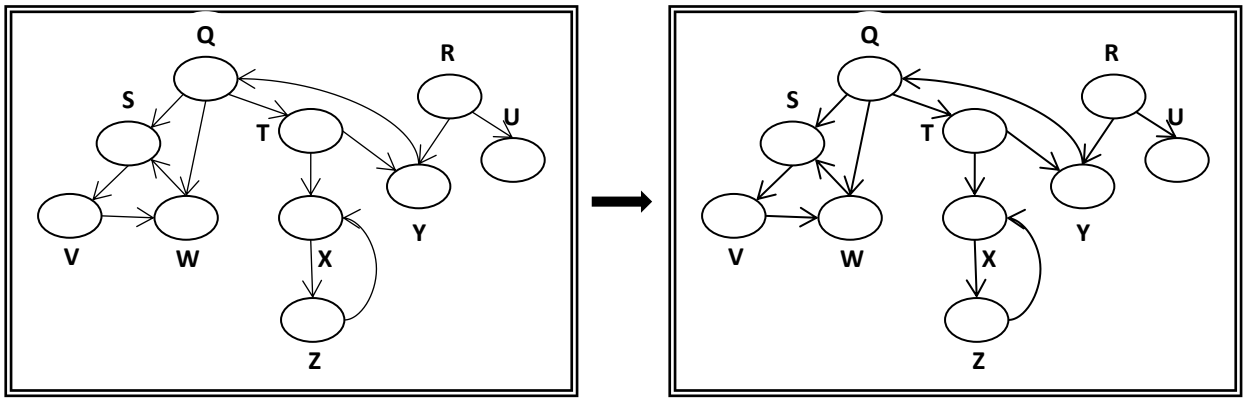


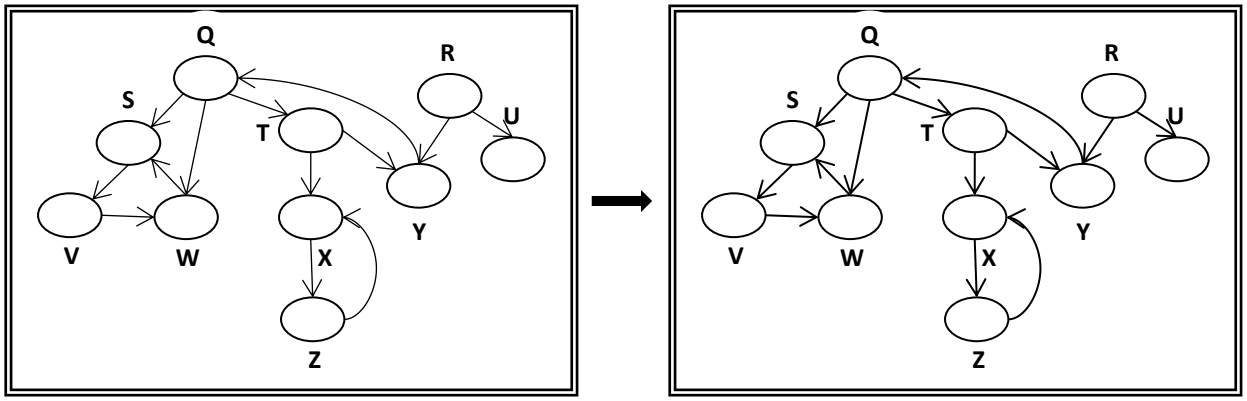


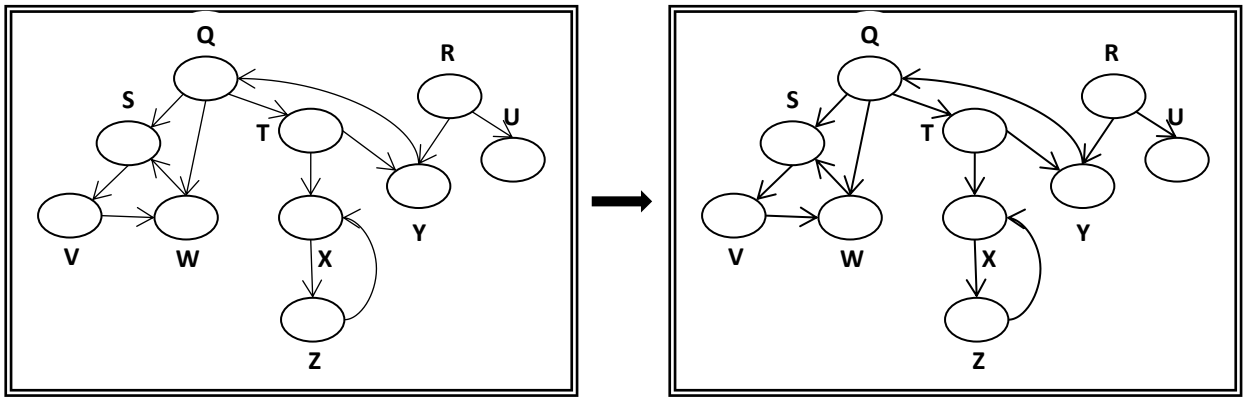
Draw the resulting breadth-first search tree.

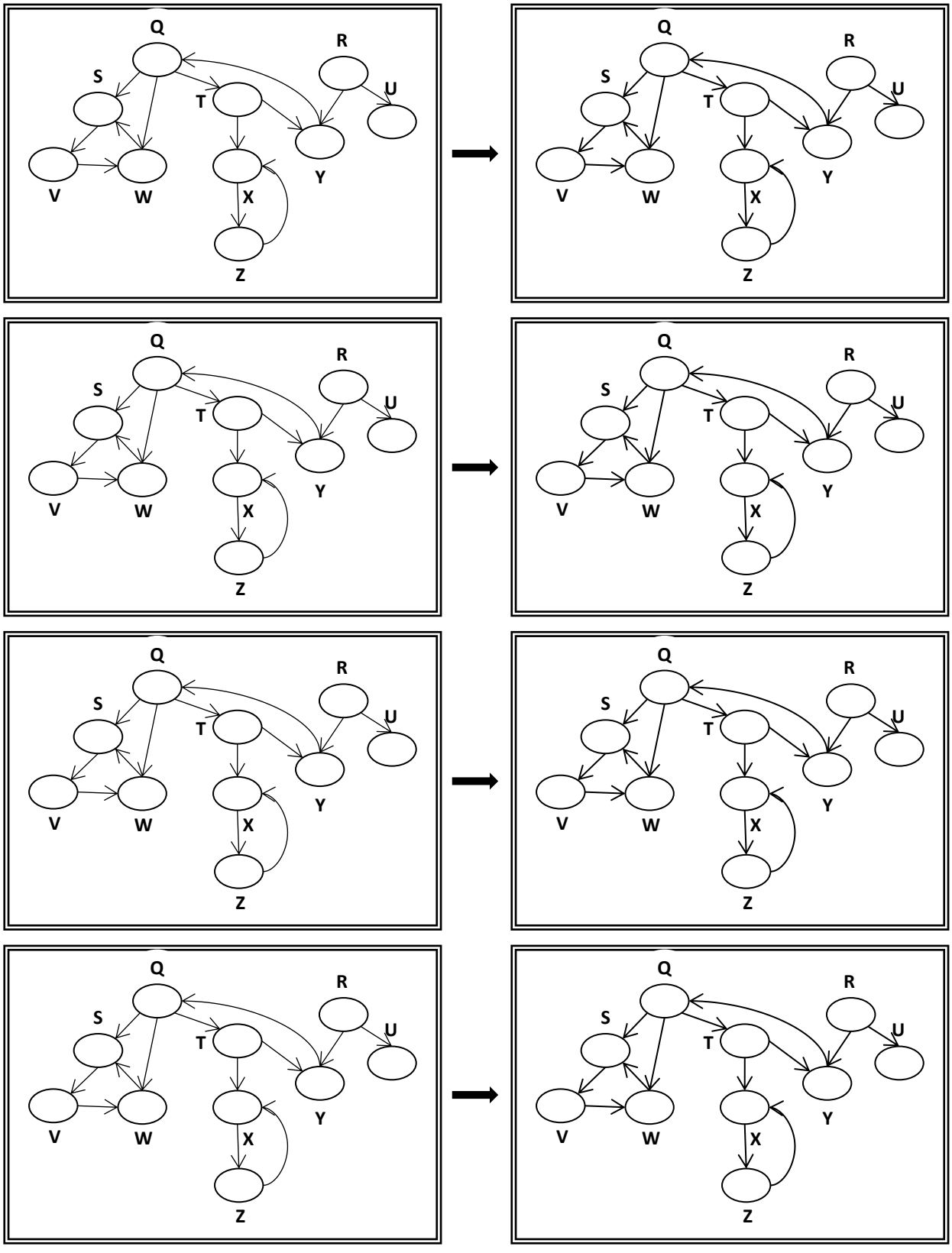


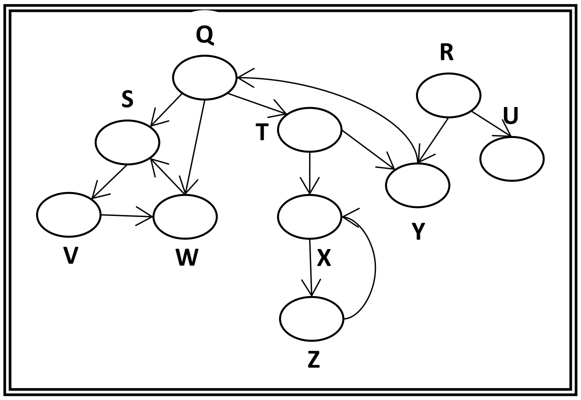
2. [6 pts] Show how depth-first search works on the following graph. Assume ***Q*** is the source vertex, and the adjacency list is in alphabetical order. Write (W/G/B) next to each vertex to indicate White/Gray/Black color and its discover & finish time accordingly, also label each edge as T, B, C or F according to whether they are Tree, Back, Cross or Forward edges. At the very end, draw the depth-first tree/forest. (See Fig. 22.4 on textbook pp.605 for such an example)

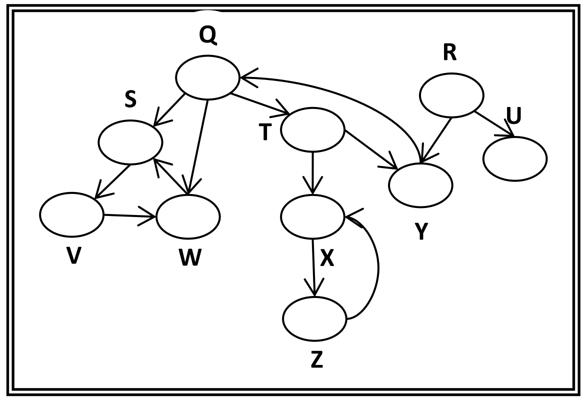


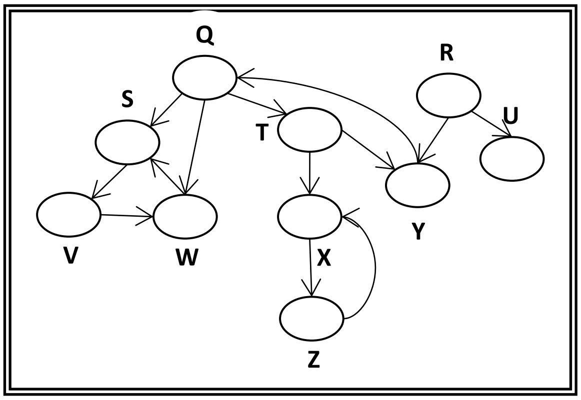


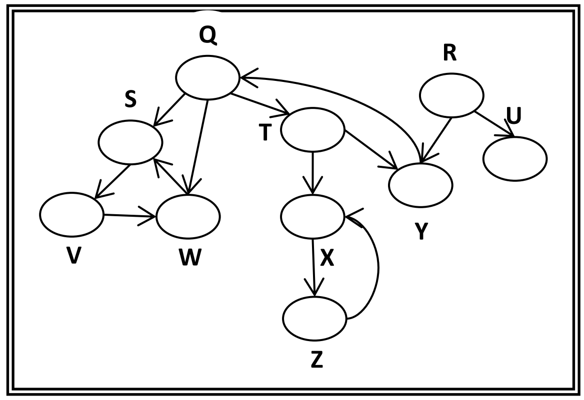


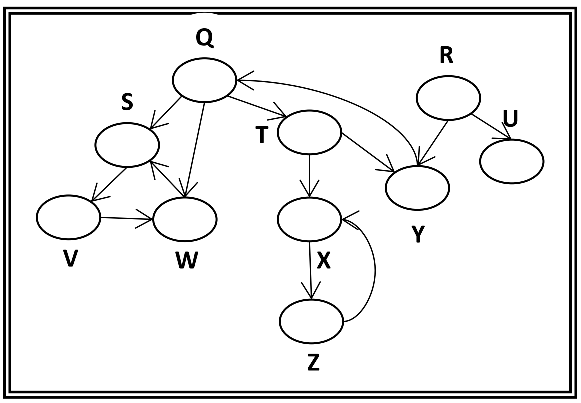

Q
R
S
T
U
V
W
X
Y
Z

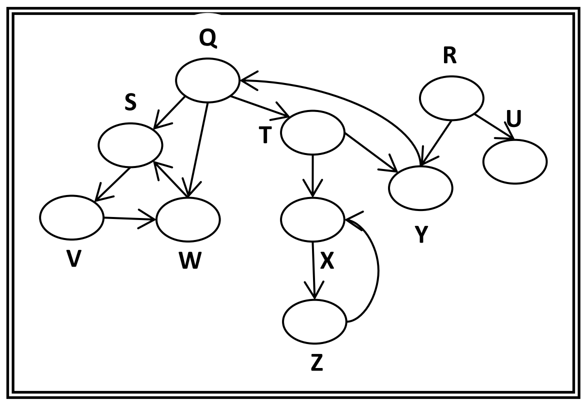












Draw the resulting DFS tree/forest below.

Mark each edge as T, B, F or C below.