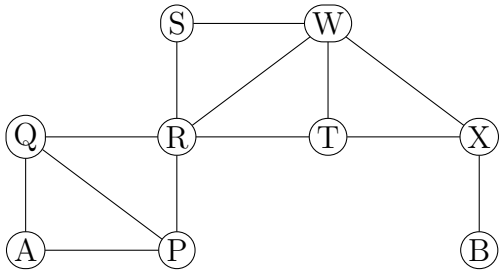
CS 173, Fall 18 Examlet 6, Part B

Name:_____

NetID:_____ **Lecture: B**

Discussion: Friday 11 12 1 2 3 4

(9 points) How many paths are there from A to B in the graph below? Explain or show work.



Solution: There are four ways to get from A to R. Then there are six ways to get from R to X: RSWX, RSWTX, RWX, RWTX, RTWX, RTX. And then there is only one way to get from X to B. So there are a total of $4 \cdot 6 = 24$ paths from A to B.

(2 points) How many connected components does the above graph have?

Solution: One

(2 points) What is the diameter of the above graph?

Solution: Five

(2 points) Does the above graph have a cut edge?

Solution: Yes

Name:_____

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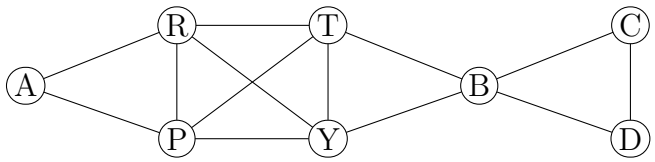
Discussion: Friday 11 12 1 2 3 4

(9 points) How many paths are there from A to C in the graph below? Explain or show work.



Solution: Suppose we go first to node R. We can continue to B via the following 10 sequences of nodes: T, Y, TY, YT, PT, PY, PTY, PYT, TPY, YPT. If, instead, we first go to P, there is a similar set of 10 ways to reach B. So there are a total of 20 ways to get from A to B. And then two ways to get from B to C. So there are a total of 40 paths.

(2 points) How many connected components does the above graph have?

Solution: One

(2 points) Does the above graph have a cut edge?

Solution: No

(2 points) Does the above graph have an Euler circuit?

Solution: Yes (ARTBCDBYTPYRPA)