Congratulations! You passed!
TO PASS 60% or higher

Keep Learning

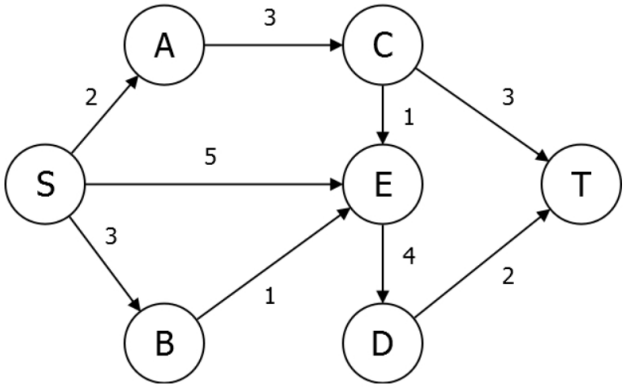
GRADE
80%

Flow Algorithms

LATEST SUBMISSION GRADE
80%

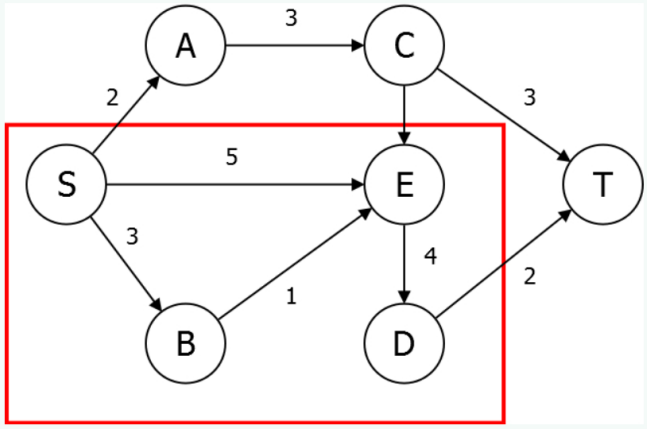
1. Which vertices are in the minimum S-T cut in the network below?

1 / 1 point



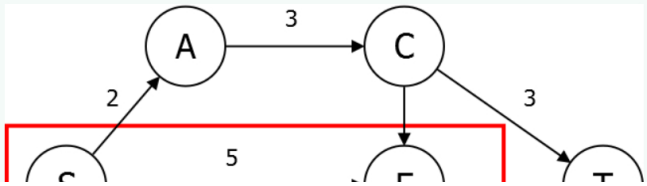
- [ ] A
- [x] B

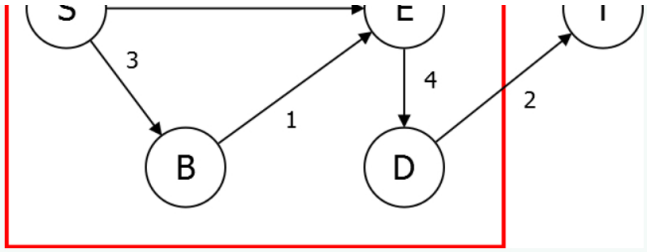
Correct
The mincut below has size 4 and contains B.



- [ ] C
- [x] D

Correct
The mincut below has size 4 and contains D.

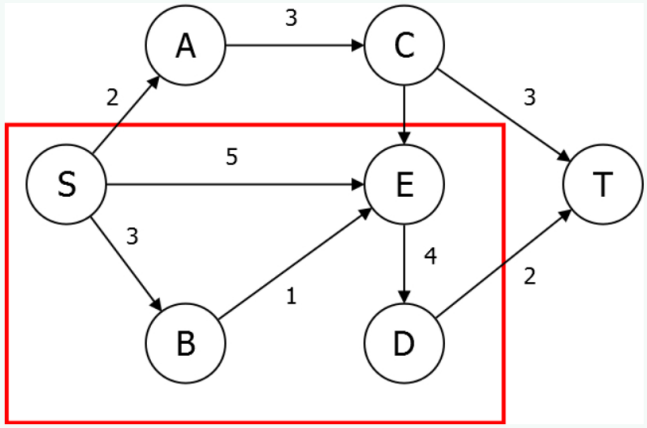




☑ E

✓ **Correct**

The mincut below has size 4 and contains E.



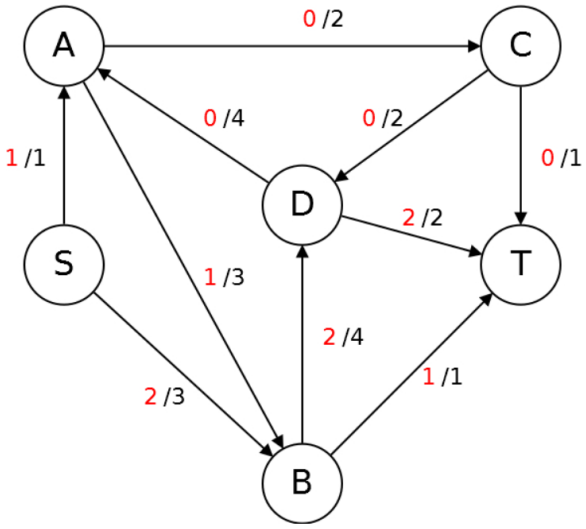
☑ S

✓ **Correct**

The source is always in a cut.

☐ T

2. What is the augmenting path that will be used by the Edmonds-Karp algorithm to increase the flow given below? **1 / 1 point**



- ○ S-A-C-T
- ○ S-B-A-C-D-T
- ◉ S-B-A-C-T
- ○ S-B-D-C-T
- ○ S-B-T

✓ **Correct**

Correct!

3. Which of the statements below is true? **1 / 1 point**

- [ ] The Edmonds-Karp algorithm is always faster than the Ford-Fulkerson algorithm.
- [x] The sum of the capacities of the edges of a network equals the sum of the capacities of the edges of any residual network.

✓ **Correct**

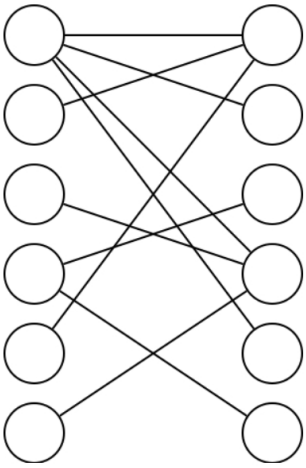
True. The reduced capacity of any edge of the network is exactly compensated for the by the capacity of the reverse edge.

- [x] The Ford-Fulkerson algorithms runs in polynomial time on graphs with unit edge capacities.

✓ **Correct**

True. For such graphs, the maximum flow is at most $|V|$.

4. What is the size of the maximum matching of the following graph? **1 / 1 point**



4

✓ **Correct**

5. Consider the image segmentation problem on a picture that is given by an n by n grid of pixels. Suppose that separation penalties are imposed only for adjacent pairs of pixels. If we use the Edmonds-Karp algorithm to solve this problem as described in class, the final runtime is O(n^a) for some a. What is the best such a? **0 / 1 point**

No answer

! **Incorrect**

The answer you gave is not a number.