

$$= \Theta(n)$$

of key comparisons when inserting a new key. You may assume equal probability for the new key to be hashed into each of the n slots.

[Note: Checking if a slot is empty is not a key comparison.]

Q3 Manually execute breadth-first search on the undirected graph in Figure 5.2, starting from vertex s . Then, use it as an example to illustrate the following properties:

- (a) The results of breadth-first search may depend on the order in which the neighbours of a given vertex are visited.
- (b) With different orders of visiting the neighbours, although the BFS tree may be different, the distance from starting vertex s to each vertex will be the same.

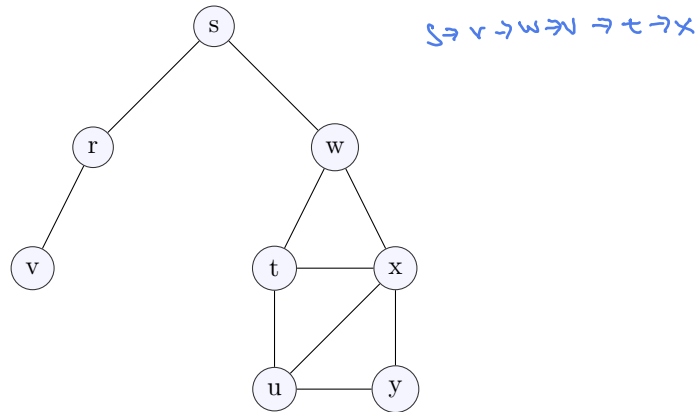


Figure 5.2: The Graph for Q3