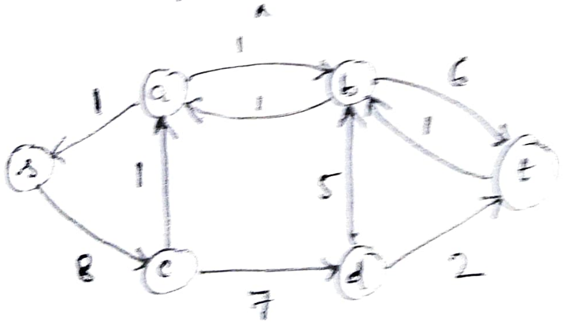
- **Running time of the algorithm.**
The ford-fulkerson's algorithm runs in time $O($ [illegible] of maximum flow. Observe in the graph that the value of maximum flow [illegible] every $j = 1, \ldots, m$, [illegible] Therefore, value of the maximum flow [illegible] number of vertices is [illegible] $+2$ and the number of edges is $O($ [illegible] running time of the Ford-Fulkerson's algorithm is $O($ [illegible] Finally, the construction of the graph takes $O($ [illegible] time. Hence, the running time of the algorithm is $O($ [illegible]

~~8.~~ **(10Marks)** Consider the following flow network. The numbers denote the capacities of the edges. Illustrate the execution of Ford-Fulkerson's Algorithm to compute a maximum flow from s to t in this network. Your illustration must show step by step execution of the Ford-Fulkerson's Algorithm, particularly the changes in the residual graph and the flow value in every edge at each step.

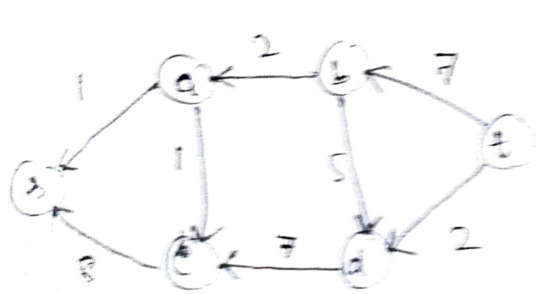
Figure 2: Flow network

(1 unit)

Send flow via path $s \to a \to b \to t$



Send 1 unit flow via $s \to c \to d \to t$



Send 1 unit through $s \to c \to d \to t$

5 +2 marks for showing stage by stage residual graph.

2 +1 marks for mentioning flow value (max flow) and ~~and~~ final value of flow for every edge