Name: **SOLUTION**

[10p] Consider the graph G whose adjacency matrix representation is given below: $G_{ij} = c(e_{i \to j})$

Let node 0 be the source and node 9 be the sink. Find the maximum flow.
Show your work. *(No point if the solution is obtained by brute force or guessing.)*

G	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
0	0	**6**	0	0	0	**6**	0	0	**2**	0
1	0	0	**3**	0	0	**3**	0	0	0	0
2	0	0	0	**2**	0	**6**	0	**3**	0	0
3	0	0	0	0	**4**	0	0	0	0	0
4	0	0	0	0	0	0	0	**4**	0	**7**
5	0	0	0	0	0	0	**3**	0	**2**	0
6	0	0	0	0	0	0	0	**2**	**1**	0
7	0	0	0	0	0	0	0	0	0	**3**
8	0	0	0	0	0	0	0	0	0	**6**
9	0	0	0	0	0	0	0	0	0	0

Use Ford-Fulkerson algorithm to find the max flow or alternatively consider the s-t cut (A,B) with A={**0**,1,5,6} and B={2,3,4,7,8,**9**}.

$$cap(A,B) = \sum_{e_{A \to B}} c(e) = c(e_{0\to 8}) + c(e_{1\to 2}) + c(e_{5\to 8}) + c(e_{6\to 7}) + c(e_{6\to 8})$$

$$= 2 + 3 + 2 + 2 + 1$$

$$= 10$$

It can be shown that this is a min cut, so the max flow is **10**.