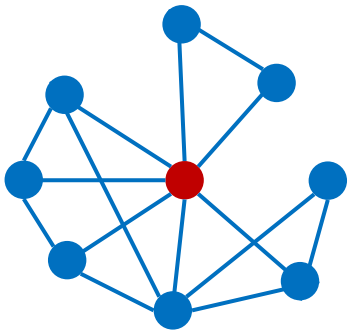
HOMEWORK #6（10分）

一、Given a graph *G* with *n* nodes and *m* edges, what is the average degree of nodes in *G*?（2分）

二、For the example graph, what is node *v*'s clustering coefficient?（2分）



三、Node representation learning aims to learn a latent feature matrix $X \in R^{|V| \times k}$ for nodes *V* in a graph *G = (V, E)*, what is the common choice for the dimension size *k*?（单选，2分）

A. Usually larger than $|V|$

B. Usually equal to $|V|$

C. Usually much larger than $|V|$

D. Usually much smaller than $|V|$

四、Pagerank algorithm calculation. (4分)

Calculate the pagerank of each node according to the Pagerank algorithm (PPT 46, 47) for the following graph. Note: β is 0.85, and the

convergence condition is that each page's pagerank from the previous iteration differs from the current iteration by less than 1e-3.

提交说明:需要提交源代码与报告。报告中简单说明 1)实现思路;2)结果和分析。 注意:请不要调用直接计算 pagerank 的库。