Problem 4 (2 points):
Compute the degree and diameter of the shuffle-exchange graph.

Problem 5 (2 points):
Show that the $b$-ary DeBruijn graph of dimension $d$ has a degree of $2b$ and a diameter $d$. Express $d$ in terms of $n$ (the number of nodes) and $b$ in order to show that the DeBruijn graph can be used to prove Theorem 2.10.

Problem 6 (2 points):
Compute the edge expansion of an $n \times n$-torus. It is sufficient here to guess the right set $U$ and to compute the value $c(U, \overline{U})/ \min\{c(U), c(\overline{U})\}$.

Problem 7 (2 points):
Specify a set $U$ in the $d$-dimensional hypercube with the property that $c(U, \overline{U})/ \min\{c(U), c(\overline{U})\} = \Theta(1/d)$. 