Dr. A. Betten Spring 2006

M502 Combinatorics II

exercise sheet # 3

Exercise # 1 (5 points)

According to the integrality conditions presented in the lecture, work out the formulae for the multiplicities of the two restricted eigenvalues in the case of the following types of strongly regular graphs:

a) $P(q)$

b) $L_2(m)$

c) $T(m)$

Work out the numbers for a few small cases.

Exercise # 2 (5 points)

Write a program to sift for possible parameter sets (v, k, λ, μ) of strongly regular graphs (for instance using Maple). Restrict to non-trivial graphs. Restrict to graphs whose degree is $k \leq \lfloor \frac{v}{2} \rfloor$. Have the program check the integrality conditions. How many parameter sets survive with $v \leq 50$ ($v \leq 100$)? Your program should also compute the restricted eigenvalues and their multiplicities.

due to Monday, 2/20/06.