MATH3301 MIDSEMESTER EXAM, 2006

DATE AND VENUE: September 20th, 1 pm, in Room 51-207, note this is the usual lecture time and lecture room.

FORMAT: The exam will contain a number of True/False question, each worth 1.5 marks, and a number of short answer questions, where you will be asked to evaluate a quantity, execute an algorithm or prove a simple result. The total number of marks on the exam paper is 40.

CONTENT: The exam will test material presented in the notes up to an including the section on Generalized Ramsey Numbers. It will not include any material from the section on Networks.

The following is a list of important notation you need to know.

Notation	Comment
$G = (V, E)$	graph G
$V = V(G)$	vertex set
$E = E(G)$	edge set
$x \sim y$	vertex x is adjacent to vertex y
$\|V\| = p$	order, number of vertices in G
$\|E\| = q = q(G)$	size, number of edges in G
$deg\, v = d(v)$	degree of vertex v
$d(u, v)$	distance from vertex u to vertex v
$N(v)$	neighbourhood of vertex v
C_n	cycle of length n, ie n vertices and n edges
P_n	path of length n, ie n vertices and $n-1$ edges
$\delta(G)$	minimum degree over all vertices
$\Delta(G)$	maximum degree over all vertices
$k(G)$	number of components of G
$k_o(G)$	number of components of G of odd order
$\kappa(G)$	minimum number of vertices that disconnect G
$\lambda(G)$	minimum number of edges that disconnect G
$\tau(G)$	number of spanning trees for G
$c(G)$	closure of G

In revising for the exam, you should:

- learn the statement of the results and definitions which have been presented in the notes and the contrapositive of these statements.
- revise examples presented in lectures.
- revise assignment questions.
- complete the following questions from the problem sheets.

Problem Sheet	Questions
1	2, 10, 11, 12
2	2, 7, 8
3	1, 2, 3, 5
4	2, 4, 5, 7, 8, 9