

MATH475 MIDTERM

The test is **open book**. No cooperation is allowed on the test!

Show work!! No credit will be given for unjustified answers.

Due date: April 16.

- (1) Which of the pairs of graphs in Figure 1 are isomorphic?
- (2) Find the minimal number m such that $K_{4,7}$ can be represented as a union of m disjoint Euler paths.

(3) Compute the chromatic polynomial of the graph in Figure 2.

(4) Four professors have to teach 8 classes in the Fall 2009. Each professor teaches 2 courses. Their teaching preferences are the following

Brown	140	220	246
Green	310	401	410
Grey	220	340	475
White	140	220	246

(The order of classes for each professor is not important.) Find a teaching schedule which maximizes the number of pairs (A, B) where professor A is willing to teach course B .

(5) AAA gives the following expected driving times between the major travel hubs of the New York State. ("—" means that to drive between the cities you need to pass another city in the table.)

City	Alb	Bin	Buf	NYC	NF	Roc	Syr
Albany	0	1:59	—	2:21	—	—	2:09
Binghamton	1:59	0	3:47	3:14	—	3:23	1:07
Buffalo	—	3:47	0	—	0:22	1:08	2:16
New York City	2:21	3:14	—	0	—	—	—
Niagara Falls	—	—	0:22	—	0	1:21	—
Rochester	—	3:32	1:08	—	1:21	0	1:15
Syracuse	2:09	1:07	2:16	—	—	1:15	0

Find the fastest itinerary between New York City and Niagara Falls.

Figure 1

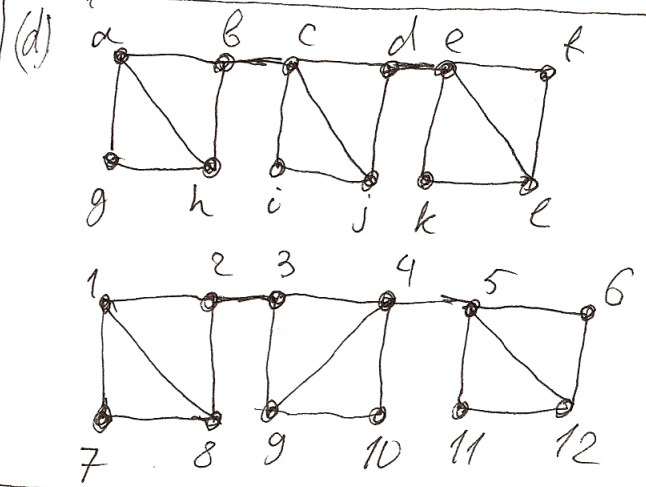
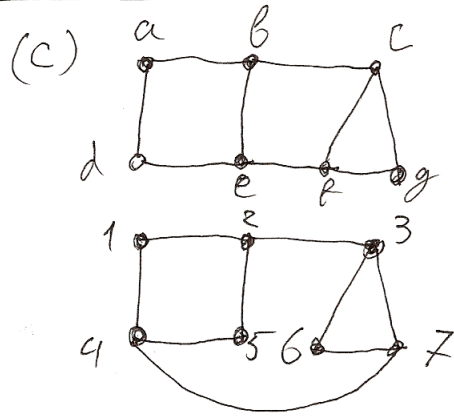
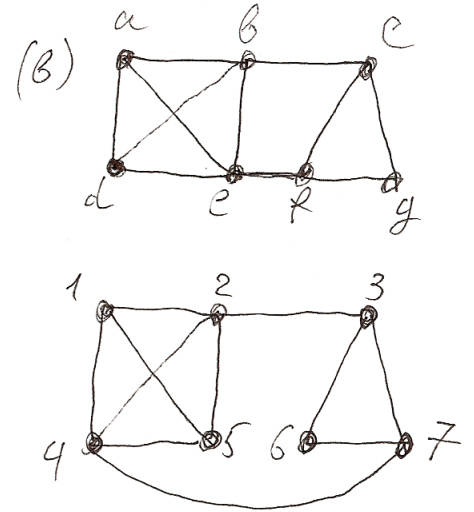
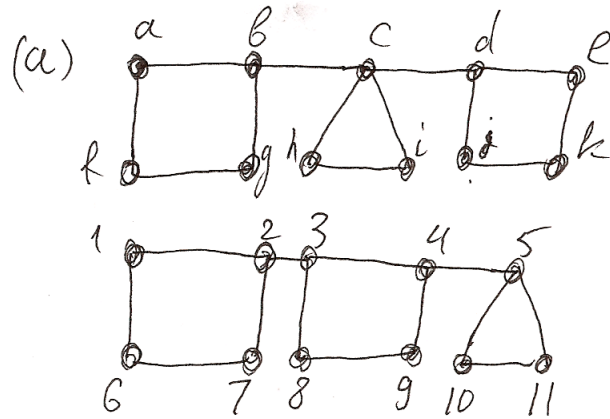


Figure 2

