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Discrete Math Hw-3

Problem 1

	a	b	c	d	e
a	0	1	0	1	0
b	1	0	1	1	1
c	0	1	1	0	0
d	1	0	0	0	1
e	0	0	1	0	1

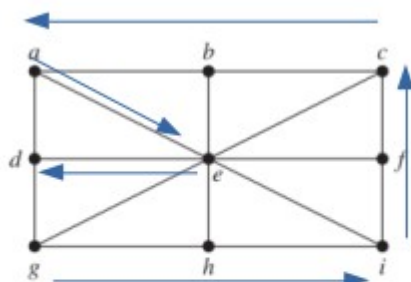
If the node 'a' has relation that goes to the node 'b', then we say $[a][b]$ is 1. If it hasn't, then it's 0. I apply this rule to all graph. And since this graph is directed graph, the matrix is not symmetric.

Problem 2

a) Let's suppose there are hamilton circuit. If ab exist then da must be to complete the circuit. Then also ed must be because if de is not in circuit then e cant be accessed in any ways to complete circuit. And similarly ef, fg, hg, ch cb. So we understand that there are no way without passing on b more than one. Its not only for b since it is a symmetric figure. Its same for other outer vertices.

b) The graph G_2 can not have hamilton circuit. Because it has vertex that has only one neighbor (degree is 1).

c)



(c) The graph G_3

We can have a hamilton circuit in graph G_3 as shown on the left side.

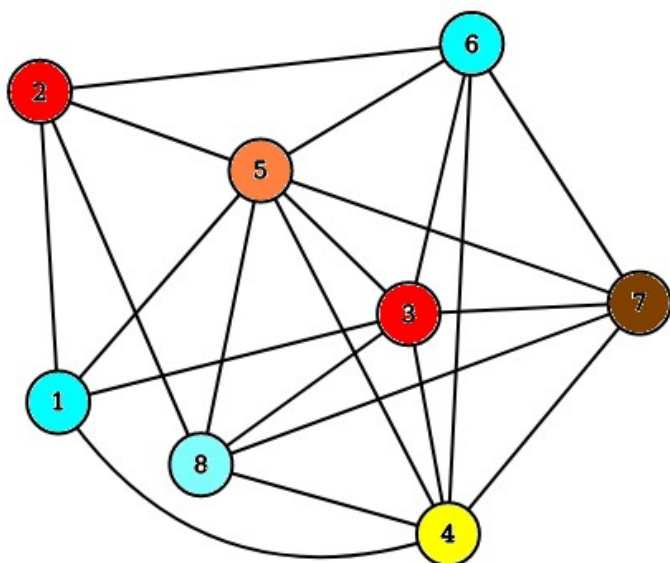
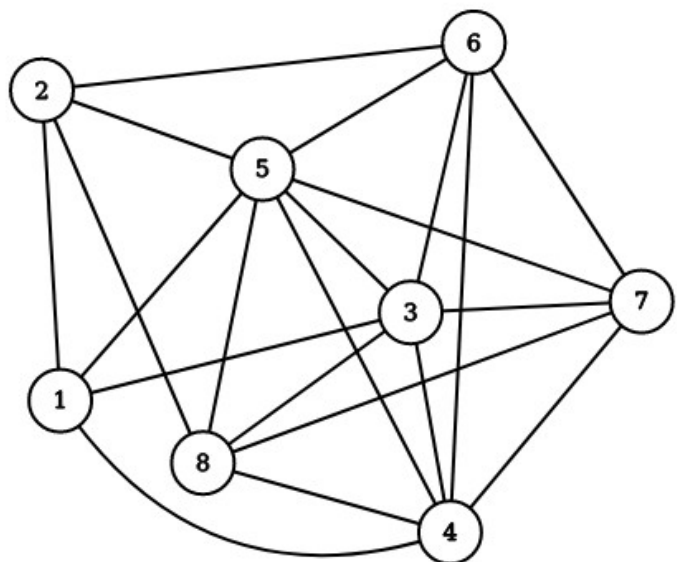
Problem 3

We can this problem with graph coloring.

1) Firstly we make a table to determine which is overlap.

	Math 101(1)	Math 243 (2)	CSE 333 (3)	CSE 346 (4)	CSE 101 (5)	CSE 102(6)	CSE 273 (7)	CSE 211 (8)
Math 101(1)				X	X	X	X	
Math 243(2)			X	X	X	X	X	
CSE 333 (3)		X			X	X	X	X
CSE 346 (4)	X	X					X	X
CSE 101 (5)	X	X	X			X	X	X
CSE 102 (6)	X	X	X		X		X	X
CSE 273 (7)	X	X	X	X	X	X		X
CSE 211 (8)	X	X	X	X	X	X	X	

2) We draw the graph by using this table.



3) Then we are coloring the graph
Finally, as u see we have minimum 5 time slots.