Methods of optimal solutions retake exam: 60 minutes.

1. Solve the system of differential equations:

$$\begin{cases} \dot{x} = 5x + 2y + 1 \\ \dot{y} = 2x + 2y \end{cases}$$

2. Find the minimal value of the objective function $x_1 + 2x_2 + 3x_3$ subject to the constraints $x_1 - x_2 + x_3 \geq -1$, $2x_1 + 2x_2 + 3x_3 \geq 10$, all the choice variables are nonnegative.

3. Consider the following bimatrix game:

	D	E	F
A	4;1	2;0	2;-1
B	-2;6	4;5	2;2
C	1;0	3;-1	3;1

   (a) Find all the pure Nash equilibria

   (b) Find all the mixed Nash equilibria