Name:

|  |  |  |
| --- | --- | --- |
| Problem | Points | Score |
| 1 | 50 |  |
| 2 | 25 |  |
| 3 | 25 |  |
| Total | 100 |  |

Notes: The exam is closed book and closed notes.

**(50 pts) Problem No. 1**: Solve this system of differential equations:

where and . Hint: write these equations in matrix form.

**(25 pts) Problem No. 2**: Determine whether is independent in .

**(25 pts) Problem No. 3**: Is the following matrix positive definite?