Zewail City of Science and Technology
PEU Program, Fall 2019-20
PEU 450: Computational Physics
Homework 4
Due date: Thursday, October 10th

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1. **Problem 1.4**.
   (a) (5 points) Obtain the analytic solutions for $N_A(t)$ and $N_B(t)$.
   (b) (10 points) Write a code to obtain them numerically. Test your code to make sure that your solution converges For $\tau_B = 1$ and $\tau_A = 2$.
   (c) (5 points) Compare analytic solutions with numerical ones for $\tau_B = \tau_A = 1$, $\tau_B = 10\tau_A = 10$, and $\tau_B = \tau_A/10 = 0.1$

2. (10 points) **Problem 1.5**. You must write a code and compare with **NDSolve** or **NDSolveValue**.