Philadelphia University **Student Name:**

Faculty of Engineering **Student Number:**

Dept. of Computer Engineering
First Exam, First Semester: 2006/2007

Course Title: Modeling & Simulation	**Date: 28 /11 /2006**
Course No: (630573)	**Time Allowed: 1 Hour**
Lecturer: Dr. Mohammed Mahdi	**No. of Pages: 1**

Question 1: **(11 Marks)**

Objectives: This question is about basic concepts of Modeling & Simulation.

A) Discuss the advantages of Simulation from the following points of views: - (3 Marks)

1- Many things can be explored without disrupting ongoing operations of the real system.

2- What can be tested without committing resources of their acquisition?

3- "What if "questions can be answered?

B) Given the model Y(s) / X(s) = 2 / (5 s + 4) it is required to:- (4 Marks)

1- Find directly the response and parameters for X(s) = unit step.

2- Sketch three possible analog computer set up.

C) **Given the response $Y(t) = 0.25\, e^{-0.5\,t}$. it is required to:- (4 Marks)**

1- **Give the identity and characteristics of such system behavior.**

2- What conclusions can you make?

Question 2: **(9 Marks)**

Objectives: This question is about analog computer simulation.

Given the following analog computer simulation set up. It is required to: -

1- Extract system model that the set up represents. **(3 Marks)**

2- Calculate the model parameters **(3 Marks)**

3- Estimate all cases of model behavior. **(3 Marks)**

Good Luck