Second Exam, Second Semester: 2014/2015

Course Title: Real-Time Computer Control Systems	**Date:** 12/5/2015
Course No: (630512)	**Time Allowed: 50** minutes
Lecturer: Dr. Mohammed Mahdi	**No. of Pages:** 1

Question 1: *(8 Marks)*

Objectives: This question is about real-time programming

Explain **briefly** the following statements: -

1. There are two different techniques for transferring data in real-time.

2. Task has many different states.

3. Two strategies are available to schedule the tasks execution.

4. In RT languages the design interest considers system requirements over that of user.

Question 2: *(12 Marks)*

Objectives: This question is about using z-transform in discreet systems.

A) Given the following functions: - (6 Marks)

$$1.\ f(kT) = vKT \qquad 2.\ f(kT) = a^k$$

It is required to: -

- name each function.

- assign where each function may be faced.

- Derive the z-transform expression for each one.

B) Given y(z) = $\dfrac{z^2 + 3z}{z^2 - 4z + 3}$,it is required to: - (6 Marks)

- Prove that y(k) = -2+3(3)^k

- Find y(0), y(∞)

- Sketch the system simulation diagram.