

King Fahd University of Petroleum and Minerals  
College of Computer Sciences and Engineering  
Department of Computer Engineering

**COE 353 – Fundamentals of Computer Communications (T111)**

**Homework # 02 (due date: Sunday 27/11/2011 during class period)**

**\*\*\* Show all your work. No credit will be given if work is not shown! \*\*\***

**Problem # 1 (10 points):** Suppose that an analog data signal that has a frequency spectrum between 1 KHz and 10 KHz is to be digitized and then transmitted. Calculate the following:

1. **(5 points)** The minimum sampling rate needed for correct digitization.
2. **(5 points)** The minimum data rate needed to transmit the digitized signal if 2048 different quantization levels are used.