**CS 6360.002/003 - Assignment 4**

Due Date: November 6, 2016

**1.** Are the following sets of FDs equivalent? Explain why.

{A->C, AC->D, E->AD, EC->DH, DE->CH }

{A->CD, E->AH}

**2.** Find a 3NF decomposition of a relation R(ABCDEFGHIJ) that satisfies the following FDs: { AB->C, BD->EF, AD->GH, A->I, H->J, GD->ABH }

**3.** Find a minimal cover of the following set of dependencies:

{AB->CDE, C->BD, CD-> E, DE->B }

**4.** Consider a relation R(ABCDEFGHIJ) satisfying the following FDs: FI→EHJC H→GB F→EA HI→FGD A→C

(a) Find the list of all prime attributes of R. Show the steps.

(b) Based on given functional dependencies and candidate keys that you have found, find a 3NF decomposition of R.

**5.** Find a lossless (non-additive), dependency preserving 3NF decomposition of R(EFGHI) using the minimal cover method. R satisfies the following dependencies:

FG→E HI→E F→G FE→H H→I

**6.** Write a PL/SQL program that raises the salary of the employees in ‘Sales’ department by 25%.

**7.** Write a stored procedure in PL/SQL that prints out the list of books that have been borrowed from a particular branch in last 30 days and haven’t been returned yet. Procedure should accept the Branch-name as an input parameter. Along with the book title, display also the borrower’s name and phone number. Use the LIBRARY database in Assignment-1.

Questions 1-5: 10 points, 6-7: 25 points