

**MTH 518/618**

COMMUTATIVE ALGEBRA

ASSIGNMENT-3

SUBMISSION DATE: 18/10/2017

**Problem 1.** Solve 2, 4, 5, 6, 7, 8, 9, 23, 28, 29 from Chapter 5.

**Problem 2.** Show that any Noetherian valuation ring is a principal ideal domain.

**Problem 3.** Find all valuation subring of  $\mathbb{Q}$ .

**Problem 4.** Show that in a valuation ring every radical ideal is prime.

**Text Book:** Introduction to Commutative Algebra, Atiyah, Macdonald.