

COMMUTATIVE ALGEBRA (MTH-518/618)

SURPRISE QUIZ (17/10/2017)

Time: 45 minutes

Maximum Marks: 10

Attempt all questions. Use separate page for each answer.

Problem 1. Let A be a principal ideal domain with quotient field K . Then the valuation rings of K containing A different from K are the type A_p for some prime ideal p in A . (6)

Problem 2. Let A be an integral domain. Show that A is a valuation ring iff every pair of elements $a, b \in A$ either a/b or b/a . (4)