

## REMIDI UJIAN TENGAH SEMESTER SEMESTER GASAL 2015/2016

Program Sarjana - Jurusan Sistem Informasi Fakultas Teknologi Informasi Institut Teknologi Sepuluh Nopember Kampus ITS Sukolilo, Surabaya 60111. 031 – 5999944

MATAKULIAH : Matematika Diskrit			KELAS : A, C, D		
Dosen	:	Eko Wahyu Tyas D	Sifat	:	TERBUKA 1 lembar A4
Durasi Waktu Pelaksanaan	:	60 Menit	Hari/Tanggal	:	Jum'at, 11/12/2015

1. The inhabitants of Joy Island consist of knights and knaves. Knights always tell the truth while knaves always lie. You encounter two people A and B. Determine if possible, what A and B if they address you in the ways described:

A says "The two of us are both knight", and B says "A is a knave."

(20 Points)

- 2. Show that  $\sim p \leftrightarrow \sim q$  s logically equivalent with  $p \leftrightarrow q$  by using Table of Equivalence Laws. (20 Points)
- 3. Determine whether 2 is an element of each of the following sets.
  - a.  $\{x \in \mathbf{R} | x \text{ is an integer greater than 1} \}$
  - b. {{2}, {{2}}}
  - c.  $\{\{\{2\}\}\}\}$

(15 Points)

- 4. Determine whether A x B x C is equivalent to (A x B) x C and explain why. (20 Point)
- 5. Prove that if x and y are real numbers, then  $\max(x, y) + \min(x, y) = x + y$ . (Hint: Use a proof by cases, with the two cases corresponding to  $x \ge y$  and x < y, respectively). (25 Points)