School of Law, Kanazawa University

Special Lecture on Jurisprudence, Midterm Examination

16 Dec. 2016, Hidehiko Adachi

1. Translate these English sentences into wffs. (2 points)
   (a) Not both A and B.[*1]
   (b) Both A and either B or C.[*2]

2. Calculate each truth value. (2 points)
   (a) $(0 \vee 1)$ [*3]
   (b) $(1 \supset 0)$ [*4]

3. Do a truth table for each formula. (4 points)
   (a) $(P \equiv \sim Q)$ [*5]
   (b) $(\sim Q \supset \sim P)$ [*6]

4. Draw any simple conclusions (a letter or its negation) that follow from these premises. If nothing follows, write "no conclusion". (2 points)
   (a) $(P \cdot U)$ [*7]
   (b) $(\sim N \supset S)$ [*8]

[*1] Harry J. Gensler, Introducton to Logic (2nd edn, 2010) 6.1a, 1.
[*2] 6.1a, 2.
[*3] 6.2a, 1.
[*4] 6.2a, 14.
[*5] 6.5a, 1.
[*6] 6.5a, 7.
[*7] 6.10a, 1.
[*8] 6.10a, 3.

5. Prove each of these arguments to be valid or invalid. (20 points)

(a) [*9]

$$(A \supset B)$$
$$\therefore \quad (\sim B \supset \sim A)$$

(b) [*10]

$$((A \vee B) \supset C)$$
$$\therefore \quad (\sim C \supset \sim B)$$

(c) [*11]

$$(A \vee B)$$
$$\therefore \quad A$$

(d) [*12]

$$\sim (A \cdot B)$$
$$(\sim A \vee C)$$
$$\therefore \quad \sim (C \cdot B)$$

(e) [*13]

$$(A \supset B)$$
$$(A \vee (A \cdot C))$$
$$\therefore \quad (A \cdot B)$$

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9	9	26.7

[*9] 7.1a, 1.
[*10] 7.1a, 4.
[*11] 7.2a, 1.
[*12] 7.2a, 9.
[*13] 7.3a, 1.