Philosophy 240, Kenny Easwaran
Midterm 2, Sample 1

November 8, 2017

Name: _____ Section: _____

1. Validity. Make up an argument with the described premises and conclusion, or say why such an argument is impossible. (10 pts each)

   (a) Invalid, with two true premises, and a false conclusion.

   (b) Valid, with one true premise, and a false conclusion.

   (c) Invalid, with two true premises, and a true conclusion.

2. Translations (10 pts each)

   (a) Translate the following sentences from English into the formal language of Tarski's World.

      i. c is a cube, and it's large if a is.

      ii. Either a or b is small, and one is a tetrahedron if and only if the other is.

      iii. If a is a medium dodecahedron, then neither c nor d is.

(b) Give ordinary English translations of the following sentences in the formal language of Tarski's World.

i. Small(a)↔ ¬Cube(a)

ii. (Cube(a)∨Tet(a))→Large(a)

iii. (Small(b)∧ Dodec(b))∧(Dodec(c)→Small(c))

3. Complete the following two incomplete proofs. Fill in the rule used on each line, and which prior lines it depends on. (20 pts each)

1	$\neg B \vee C$	_____
2	$\neg B$	_____
3	B	_____
4	$\bot$	_____
5	C	_____
6	$B \to C$	_____
7	C	_____
8	B	_____
9	C	_____
10	$B \to C$	_____
11	$B \to C$	_____

1		_____
2	$\neg\neg(A \wedge B)$	_____
3	$A \wedge B$	_____
4	B	_____
5	$\neg B$	_____
6	$\bot$	_____
7	$\neg\neg B$	_____
8	$\neg\neg(A \wedge B) \to \neg\neg B$	_____

4. If the probability that a is a tet given that it is small is 1/8, and the probability that it is a tet given that it is *not* small is 1/2, and the probability that it is small is .8, then what is the probability that it is small given that it's a tet? (20 pts)