## Test 2 Sentences

Answers on final slide

A logical connective that fails to determine a unique truth value from the truth of all of it's component statements:

- a. is not a logical connective at all.
- b. is not a truth-functional connective.
- c. is not a binary connective.
- d. is known as an 'n-ary' connective.

## 2. The following is the truth table for which connective?

	_		
a. v	$\mathcal{A}$	${\mathcal B}$	$\mathcal{A}$ ? $\mathcal{B}$
<b>b</b> 0	Т	Т	Т
D. &	Т	F	Т
■ C. →	F	Т	F
a	F	F	F
$()$ $\leftrightarrow$	_		

e. none of the above.

3. Which of the following is <u>not</u> an official formula of sentential logic?

- a.  $(p \rightarrow q)$ b.  $(p \lor (\neg q))$
- c. (p & q)
- d. ¬¬¬¬¬¬¬¬¬¬¬¬ p
- e. all of the above.

4. Which of the following <u>is</u> an official formula of sentential logic?

- a. (p ←¬¬¬q) b. (¬q & q)) c. ¬A
- d. (¬(p v q) & r<sub>5</sub>)
- e. none of the above.

5. Which of the following is <u>neither</u> an <u>unofficial nor an official</u> formula in sentential logic?

a.  $(p \lor q) \leftrightarrow (r \lor s)$ b.  $(p \lor q) \leftrightarrow (r \lor s)$ c.  $\neg \{[(p \lor q) \leftrightarrow (t \lor k)]\}$ d.  $\neg (t \lor k) \& (c \& m)$ e. all of the above. 6. What is the main connective in the following unofficial formula?

$$\neg(p \rightarrow s) \lor \neg \neg(s \leftrightarrow t)$$

- a. →
- b. v
- С. ¬¬
- d. s
- e. ↔

7. What is the scope of  $\leftrightarrow$  in the following formula? ( $\neg(p \rightarrow q) \leftrightarrow ((r \& s) \lor q))$ 

a. 
$$\neg(p \rightarrow q) \leftrightarrow ((r \& s) \lor q)$$
  
b.  $(q \leftrightarrow (r \& s))$   
c.  $\neg(p \rightarrow q)$   
d.  $(p \rightarrow q)$   
e.  $\neg p$ 

8. What is the scope of ¬ in the following formula?

$$(p \rightarrow s) \vee (\neg(s \leftrightarrow t) \& r)$$

a.  $\neg(s \leftrightarrow t)$ b.  $(\neg(s \leftrightarrow t) \& r)$ c.  $v \neg (s \leftrightarrow t)$ d.  $(s \leftrightarrow t) \& r$ 

## 9. Fill in the missing truth values:



- a. FTT
- b. TTT
- c. FTF
- d. TFT
- e. TFT

10. The main connective of this formula is \_\_\_\_\_ and its truth value is \_\_\_\_\_



- a. &, F
- b. v, T
- c. &, T
- d.  $\leftrightarrow$ , T
- e.  $\leftrightarrow$ , F

## Answers

- **1**. b
- 2. e
- 3. b
- 4. d
- **5**. c
- 6. b
- 7.a
- 8. a
- 9. c
- 10. a