



PHILADELPHIA UNIVERSITY
DEPARTMENT OF BASIC SCIENCES

First Exam A

DISCRETE STRUCTURES

24-11-2009

Part 1 Each problem is worth 2 points. Circle one answer.

- 1) The proposition $\neg q \rightarrow p$ is equivalent to
a) $p \vee \neg q$ b) $\neg p \vee q$ c) $p \vee q$ d) $\neg p \vee \neg q$
- 2) The truth table of a proposition is F T F T. What is the CNF?
a) $(\neg p \vee \neg q) \wedge (p \vee \neg q)$ b) $(\neg p \vee q) \wedge (p \vee \neg q)$
c) $(\neg p \vee \neg q) \wedge (\neg p \vee q)$ d) $(p \vee \neg q) \wedge (p \vee q)$
- 3) Convert the decimal number 3631 to hexadecimal.
a) E2F b) D2E c) C5B d) B5D
- 4) The sequence 8, 12, 16, 20, 24, 28, ... comes from the function
a) $f(n) = 2^n + 8$ b) $f(n) = 4n + 8$
c) $f(n) = 8n + 4$ d) $f(n) = n^2 + 8$
- 5) How many integers 1 to 100 are multiples of 12 or 18?
a) 9 b) 10 c) 11 d) 12
- 6) Let $A = \{2,3,5,7\}$ and $B = \{3,7\}$. Which set is empty?
a) $(A \oplus B) \oplus B$ b) $(A \oplus B) - B$
c) $(A \oplus B) \oplus A$ d) $(A \oplus B) - A$

Part 2 Each problem is worth 4 points. Write complete solution.

- 7) Evaluate GCD (765, 333).
- 8) How many solutions of $x + y + z = 14$ with integers $x \geq 5$ or $y \geq 7$ or $z \geq 1$?

-Amin Witno