PHILADELPHIA UNIVERSITY
DEPARTMENT OF BASIC SCIENCES

First Exam A **DISCRETE STRUCTURES** **25–11–2010**

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

1) The proposition $\neg p \vee \neg q$ is equivalent to

a) $p \rightarrow \neg q$ b) $\neg p \rightarrow q$ c) $p \rightarrow q$ d) $\neg p \rightarrow \neg q$

2) Which one is a contingency?

a) $\neg p \leftrightarrow \neg p$ b) $p \rightarrow p$ c) $\neg p \rightarrow p$ d) $\neg p \oplus \neg p$

3) Convert the decimal number 1534 to hexadecimal.

a) 2AE b) 7CD c) 3BF d) 5FE

4) Find GCD (654, 456).

a) 1 b) 3 c) 6 d) another answer

5) A = {1,3,5,7} and B = {3,5,7,8,9}. Then $|P(A \oplus B)|$ =

a) 4 b) 8 c) 16 d) 32

6) How many integers from 1 to 1000 are multiples of 12 or 16?

a) 145 b) 125 c) 138 d) 111

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

7) Convert $(p \rightarrow r) \wedge q$ to DNF.

8) Let f(0) = 3 and f(1) = 6 and f(n) = 2f(n–1) + 8f(n–2). Find the function f(n).

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