PHILADELPHIA UNIVERSITY
DEPARTMENT OF BASIC SCIENCES

First Exam A DISCRETE STRUCTURES 28–03–2013

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

1) The proposition $p \wedge (p \to q)$ is a

   a) contradiction c) tautology
   b) contingency d) difference

2) Evaluate GCD (321, 213).

   a) 2 b) 3 c) 6 d) 12

3) Let A = {1, 2, 3, 4, 5} and B = {3, 5, 7}. Then $|P(A - B)|$ =

   a) 8 b) 16 c) 32 d) 64

4) Let A = {1, 2, 3, 4, 5} and B = {1, 3, 5, 7}. Then $A \oplus B$ =

   a) {2, 4} b) {2, 4, 7} c) {1, 3, 5} d) {7}

5) Which proposition is equivalent to $\neg(p \vee \neg q)$?

   a) $\neg p \wedge q$ d) $\neg p \vee q$ c) $\neg p \wedge \neg q$ d) $p \vee \neg q$

6) The set $A \cap (A - B)$ =

   a) A b) $A \cap B$ c) $A - B$ d) ϕ

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

7) Convert $(P \to Q) \oplus R$ to CNF.

8) How many multiples of 8 or 20 or 25 from 1 to 300?

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