# PHILADELPHIA UNIVERSITY
## DEPARTMENT OF BASIC SCIENCES

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**First Exam A** **DISCRETE STRUCTURES** **23–03–2014**

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

1) The proposition $(p \vee q) \wedge \neg q$ is

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

2) The set $(A \oplus B) - B =$

a) $A - B$ b) $B - A$ c) $A$ d) $B$

3) If $A = \{1, 2, 4, 7\}$ and $B = \{1, 3, 4\}$, then $|P(A \cap B)| =$

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

4) How many permutations of the elements A, A, B, C, C, C, C ?

a) 35 b) 105 c) 140 d) 210

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

5) Convert $(P \oplus Q) \rightarrow \neg R$ to CNF.

6) Evaluate GCD (765, 99) and LCM (765, 99).

7) From 1 to 200, how many are multiples of 5 or 9 or 12 ?

-Amin Witno