



PHILADELPHIA UNIVERSITY
DEPARTMENT OF BASIC SCIENCES

First Exam A

DISCRETE STRUCTURES

31-03-2010

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

- 1) The proposition $p \vee \neg q$ 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 contradiction?
a) $\neg p \leftrightarrow \neg p$ b) $p \leftrightarrow p$ c) $\neg p \oplus p$ d) $\neg p \oplus \neg p$
- 3) Convert the binary number 11111011110 to hexadecimal.
a) 7DE b) 7CD c) FDE d) FCD
- 4) Which pair has $\text{GCD} = 1$?
a) (16,50) b) (91,13) c) (27,28) d) (54,15)
- 5) $A = \{1,3,5,7\}$ and $B = \{3,5,7,9\}$. Then $|P(A \oplus B)| =$
a) 4 b) 8 c) 16 d) 32
- 6) How many permutations with A, B, C, ..., Z have the word COMPUTER?
a) 19! b) 18! c) $26!/8!$ d) $26! - 8!$

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

- 7) Convert $(p \rightarrow r) \wedge q$ to DNF.
- 8) How many integers from 1 to 200 multiples of 8 or 10 or 12?

-Amin Witno