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| **Team Identification Block** |  |
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| **Course:** | CMSC 2123 – Discrete Structures |
| **CRN:** | 11176 Fall 2018 |
| **Assignment:** | a01 |
| **Due:** | August 24, 2018 |

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| **Scoring block** | | | |
| **Exercise** | **Maximum** | **Earned** | **Explanation** |
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| Total |  |  |  |

4/ What is the negation of each of these propositions?

a) Jennifer and Teja are friends.

b) There are 13 items in a baker’s dozen.  
c) Abby sent more than 100 text messages every day.

d) 121 is a perfect square.

12/ Let p, q, and r be the propositions

p: You have the flu.

q: You miss the final examination.

r: You pass the course.  
Express each of these propositions as an English sentence.

a) p → q

b/ ¬q ↔ r

c) q → ¬r

d/ p ∨ q ∨ r   
e) (p → ¬r) ∨ (q → ¬r)  
f) (p ∧ q) ∨ (¬q ∧ r)

18/ Determine whether each of these conditional statements is true or false.

a) If 1+1=3, then unicorns exist.

b) If 1+1=3, then dogs can fly.

c) If 1+1=2, then dogs can fly.

d) If 2+2=4, then 1+2=3.

32/Construct a truth table for each of these compound propositions.

a) p → ¬p  
b) p↔ ¬p

c) p ⊕ (p ∨ q)  
d) (p ∧ q) → (p ∨ q)

e) (q → ¬p) ↔ (p ↔ q)

f) (p ↔ q) ⊕ (p ↔ ¬q)