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CMSC207  
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***Homework 2 Proof Questions Chapter 2***

**207 Chapter 2 “Logic of compound statements” proof questions**

**#1**

Given the following premises:

1. p
2. (p ∨ r) → s
3. ~s ∨ q
4. Prove q

Answer:

1. p given
2. s by Modus Ponens (2)
   1. if (p ∨ r) then s, p (given) therefore (p ∨ r), therefore s
3. q by disjunctive inference (3)
   1. given s ∨ q, ~s (as described above), therefore we can deduce q

**#2**

Given the following premises:

1. ~p ∨ s

2. s → ~r

3. r ∨ q

1. Prove p→q using a conditional world proof.

Answer:

1. p by assumption for conditional proof
2. s by disjunctive inference (1)
3. ~r by Modus Ponens (2)
4. q by disjunctive inference (3)