CISC 204  Class 7

Review of Material

Test #1 in this course will cover basic propositional logic. The material will be from Class 1 to Class 4, inclusive, of the course. The main concepts are:

- Basic rules of inference: implication, disjunction, negation
- Derived rules: Proof By Contradiction, Law of Excluded Middle

To study for this test, students should be able to do at minimum these exercises from the textbook:

§ 1.1: 1(a), 1(d), 1(j), 2(d)

§ 1.2: 1(a), 1(e), 1(m), 1(s), 2(b), 2(g), 2(h), 3(c), 3(g), 3(u)

§ 1.3: 1(d), 1(h), 4(b), 5

The next page of reference material will be reproduced on the test. Students are expected to understand the rules and how to apply them.
### Rules of Deduction in Propositional Logic

<table>
<thead>
<tr>
<th>Type</th>
<th>Introduction</th>
<th>Elimination</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\land)</td>
<td>(\phi \land \psi)</td>
<td>(\phi \land \psi)</td>
</tr>
<tr>
<td>(\lor)</td>
<td>(\phi \lor \psi)</td>
<td>(\phi \lor \psi)</td>
</tr>
<tr>
<td>(\to)</td>
<td>(\phi \to \psi)</td>
<td>(\phi \to \psi)</td>
</tr>
<tr>
<td>(\neg)</td>
<td>(\neg \phi)</td>
<td>(\neg \phi)</td>
</tr>
<tr>
<td>(\bot)</td>
<td>(none)</td>
<td>(none)</td>
</tr>
</tbody>
</table>

#### Derived rules:
- PBC: \(\phi\)
- MT: \(\phi \to \psi\)

#### Other rules:
- LEM: \(\phi \lor \neg \phi\)
- Copy: \(\phi\)

---

Reference: Rules of Deduction in Propositional Logic