Journal Entries — Unit I — Chapter 1

Respond to each item, giving sufficient detail. Neatly handwrite your responses. This should be very helpful to you as you prepare for exams.

1. Complete the following table of fallacies and illustrative diagrams. The letters p and q represent statements.

(1) Appeal to _____________

Many people believe p is true; therefore ...

$p$ is true.

(2) __________ cause

A came before B; therefore ...

A caused B.

(3) Appeal to _____________

There is no proof that p is true; therefore ...

$p$ is false.

(4) ______________

A and B are linked one or a few times; therefore ...

A causes B (or vice versa).

(5) Limited ____________

$p$ is false; therefore ...

only q can be true.

(6) Appeal to ______________

$p$ is associated with a positive emotional response; therefore ...

$p$ is true.

(7) ____________ attack

I have a problem with the person or group claiming $p$.

$p$ is not true.

(8) __________ reasoning

$p$ is true.

(9) Diversion (___________)

$p$ is related to $q$ and I have an argument concerning $q$; therefore ...

$p$ is true.

(10) __________ man

I have an argument concerning a distorted version of $p$; therefore ...

I hope you are fooled into concluding I have an argument concerning the real version of $p$. 
2. Complete the following truth table for the various types of propositions.

(1) Negation

<table>
<thead>
<tr>
<th>p</th>
<th>not p</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td></td>
</tr>
</tbody>
</table>

(2) And statements (Conjunctions)

<table>
<thead>
<tr>
<th>p</th>
<th>q</th>
<th>p and q</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>T</td>
<td>T</td>
</tr>
<tr>
<td>T</td>
<td>F</td>
<td>F</td>
</tr>
<tr>
<td>F</td>
<td>T</td>
<td>T</td>
</tr>
<tr>
<td>F</td>
<td>F</td>
<td>F</td>
</tr>
</tbody>
</table>

(3) Or statements (Disjunctions)

<table>
<thead>
<tr>
<th>p</th>
<th>q</th>
<th>p or q</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>T</td>
<td>T</td>
</tr>
<tr>
<td>T</td>
<td>F</td>
<td>T</td>
</tr>
<tr>
<td>F</td>
<td>T</td>
<td>T</td>
</tr>
<tr>
<td>F</td>
<td>F</td>
<td>F</td>
</tr>
</tbody>
</table>

(4) If . . . then statements (Conditionals)

<table>
<thead>
<tr>
<th>p</th>
<th>q</th>
<th>if p, then q</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>T</td>
<td>T</td>
</tr>
<tr>
<td>T</td>
<td>F</td>
<td>F</td>
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<tr>
<td>F</td>
<td>T</td>
<td>T</td>
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<tr>
<td>F</td>
<td>F</td>
<td>F</td>
</tr>
</tbody>
</table>

3. Write the general form for each variation of the conditional statement, along with the example.

Conditional: If p, then q. If hawks are birds, then they can fly.

Converse: ____________________ ______________________________

Inverse: ____________________ ______________________________

Contrapositive: ____________________ If hawks cannot fly, then they aren’t birds.
4. For the following number sets, list either the “complete set” (using the ellipsis notation) or several examples of elements of the set.

Natural numbers = {          }
Whole numbers = {          }
Integers = {                      }
Rational numbers, examples _______ , _______ , _______ , _______ , _______  
Irrational numbers, examples _______ , _______ , _______ , _______ , _______  

5. Given the universal set $U = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\}$, give the meaning of and an example for each of the following set symbols. You make up the value for $x$, and you make up sets $A$, $B$ and $C$ to make each given statement true. The goal is to show correct use of the set symbols.

(a) $x \in A$  Let $x = 1$ and $A = \{1, 3, 5\}$.  $1 \in \{1, 3, 5\}$ or $1 \in A$

(b) $x \notin A$  

(c) $A \subset B$  

(d) $A \cap C$  

(e) $\overline{A}$  

6. Draw Venn diagrams illustrating the following set operations. In the $A \cup B$ and $A \cap B$ cases, assume that $A$ and $B$ are not disjoint (i.e., the sets overlap).

<table>
<thead>
<tr>
<th>$A \cap B$</th>
<th>$\overline{B}$</th>
<th>$A \cup B$</th>
<th>$A - B$</th>
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</thead>
<tbody>
<tr>
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</tbody>
</table>
7. For the following propositions, draw a Venn diagram and label all regions of the diagram.

(a) All whales are mammals. 
(b) No dogs are cats.

![Venn diagram]

8. A(n) __________ argument makes the case for a general conclusion for more specific premises.

For example, Premise: 2 + 3 = 5
Premise: 5 + 4 = 9
Premise: 7 + 6 = _____
Conclusion: The sum of an even integer and an odd integer is an ______ integer.

A(n) __________ argument makes the case for a specific conclusion from more general premises.

For example, Premise: All politicians are married.
Premise: Senator Harris is a politician.
Conclusion: Senator Harris is __________ .

9. Complete the table of conditional arguments.

<table>
<thead>
<tr>
<th>Structure</th>
<th>Affirming the Hypothesis</th>
<th>Affirming the Conclusion</th>
<th>Denying the Hypothesis</th>
<th>Denying the Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premises</td>
<td>If p, then q. p is true.</td>
<td>If p, then q. q is true.</td>
<td>If p, then q. p is not true.</td>
<td>If p, then q. q is not true.</td>
</tr>
<tr>
<td>Conclusion</td>
<td>q is true.</td>
<td>q is not true.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Validity</td>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. Write a few sentences describing something you learned that was new for you in class this unit. You may include a favorite activity, an interesting application, a teaching and learning technique, or a specific concept that you better understand as a result of this unit.

Do your best! Rise to the challenge! Live and learn!