Assignment 4

**Part 1:**

1. A) 𝐴⟺𝐵⊨¬𝐴∨𝐵

Text

Description automatically generated with medium confidence

B) (𝐴∧𝐵)⇒𝐶⊨(𝐴⇒𝐶)∨(𝐵⇒𝐶)

Text, letter

Description automatically generated

1. A) 𝐴⟺(𝐵∨𝐸)

Text, letter

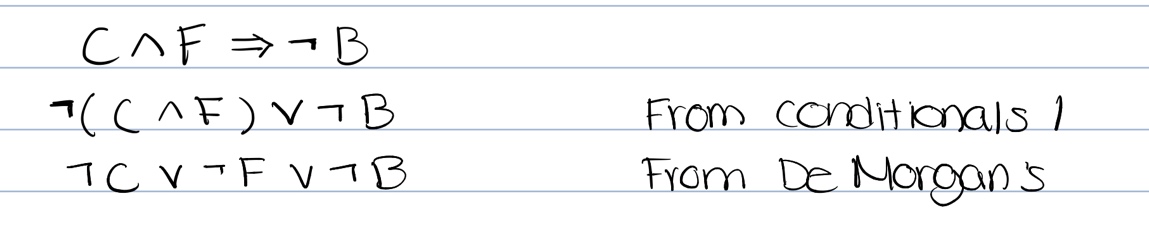
Description automatically generated

B) 𝐶∧𝐹⇒¬𝐵

Table

Description automatically generated

C) ¬((¬𝐴 ⇒ ¬𝐵) ∧ ¬𝐶)



D) (𝐴⇒𝐵)⇒(¬𝐶∧𝐵)

Text, letter

Description automatically generated

Text

Description automatically generated with medium confidence

1. Natural English Translation
   1. Everyone is male or female
   2. All people who speak the same language understand eachother
   3. Joan is a mother of one child
   4. Joan and Kevin are parents of the same child
   5. There exists a planet in which all humans live on
   6. All students take a course
   7. No two individuals do not have the same SSN
   8. All people’s SSN’s contain 9 digits
2. General Unifier
   1. {x/A, y/B, z/B}
   2. Cannot unify A with B
   3. {y/John, x/John}
   4. Cannot unify y with father()

**Part 2:**

A picture containing diagram

Description automatically generated

1. Was George the parent of Oliver?
   1. Graphical user interface, text

      Description automatically generated
2. Who was Oliver's parent?
   1. Text

      Description automatically generated
3. Who were the children of Oliver?
   1. Text

      Description automatically generated
4. Who were the brothers of Anne?
   1. Text

      Description automatically generated with medium confidence
5. Who were the cousins of Rose?
   1. Text

      Description automatically generated

Custom Queries:

1. Who is Rose’s uncle?
   1. Text

      Description automatically generated
2. Who is Oliver’s daughter(s)?
   1. Text

      Description automatically generated
3. Who is Rose’s son(s)?
   1. Graphical user interface, text

      Description automatically generated
4. Who is George’s Grandmother?
   1. Text

      Description automatically generated
5. Who are Rose’s ancestors?
   1. Text

      Description automatically generated