JULES CANEPARI LABIB, 4373553, group 103

PROBLEM SET 1.

1. a)   P1 If people can choose their actions, they have free will
        P2 People can choose their actions
        C Therefore, people have free will
        The argument is logically valid

   b)   P1 Minnie is a cow
        P2 Minnie likes to watch the sunset
        C Therefore, some cows like to watch the sunset
        The argument is logically valid

   c)   P1 Roger just came back from a holiday in Spain
        C Therefore, Roger has a tan
        The argument is logically invalid

   d)   P1 Every act of murder is a crime
        P2 Some crimes are morally wrong
        C Therefore, some acts of murder are morally wrong
        The argument is not logically valid

   e)   P1 The murderer is either the man with the hat or the woman in blue
        P2 The man with the hat is not the murderer
        C Therefore, the woman in blue is murderer
        The argument is logically valid

   f)   P1 There are salmon here
        C There are fish here
        The argument is not logically valid

   g)   P1 Everyone who likes music either likes Taylor Swift or Kendrick Lamar
        P2 I like neither
        P3 I like the Beatles
        P4 Everyone who likes the Beatles likes music
        C Therefore, fairies are real
        The argument is not logically valid

2.   P1 If today is Sunday and not a holiday, Einar is either sleeping in or playing
           football with his friends
        P2 Today is not a holiday
        P3 Einar only plays football when the weather is nice
        P4 Today it's raining
        P5 If it's raining today, it also rained yesterday
        P6 If it rained yesterday, Einar did not go out

P7 Einar only sleeps in if he went out the previous day
C Therefore, today is not a Sunday.

3. a)   P1 The temperature of the water is 100°C
        P2 Water always boils at 100°C
        C The water is boiling

   b)   P1 If Tamal is not an only child, she has a brother
        P2 Tamal is not an only child
        C Therefore, she either has a brother or she is an only child
        The argument is logically valid

   c)   P1 I don't hate romantic comedies
        P2 If I don't hate something, I must like it
        C Therefore, I like romantic comedies

   d)   P1 The state should respect international law
        C International law should be respected by the state
        The argument is logically valid (P1 and C are equivalent)

4. a)   It is not the case that the water is boiling

   b)   "The temperature of the water is 100°C", "The water is not boiling"
        The set is consistent

   c)   "If Tamal is not an only child she has a brother", "Tamal is not an only child",
        "Tamal is not an only child, nor does she have a brother"
        The set is inconsistent

   d)   "The state should respect international law", "It is not the case that international
        law should be respected by the state"
        The set is inconsistent.

   e) If an argument is valid, the set containing its premises and the negation of its
        conclusion is inconsistent. Vice versa, if an argument is not logically valid, the
        set consisting of those same elements will be consistent.

5 a)

        Subject-specific terms: "dish", "pasta", "Italian", "salsa",
                                         "contains"
        Logical terms: "not", "every", "if-then", "is"

   b)   Not every man who likes bread is French; but if a man likes mustard then he
        definitely isn't French.

c)   (S) is not logically true. Logical truth is defined as being true under any interpretation, and there is at least one interpretation under which (S) is not true.

6.   Sentence (C) is a contradiction. The sentence "No salty pasta is salty" is logically equivalent to (C), as it is true under the same interpretations (none).