Getting familiar with… translation

A. Translate the following simple and complex English sentences into claims of propositional logic. If the claim is complex, also identify the major operator.

1. It is either a cat or a skunk.

2. It flies.

3. If it flies, it is either a bird or a plane.

4. It looks very strange for a bird or plane.

5. Either it is a bird and it is deformed or it is a plane and it's very small.

6. If it is a bird and it is deformed, then someone either burned it or painted it.

7. It is not a plane.

8. If someone burned it, it would not be hopping around so happily.

9. It is hopping around happily.

10. If it was not burned, then someone must have painted it.

11. Gold was discovered this morning in Buenos Aires.

12. Gold was not discovered this morning in Buenos Aires.

13. If there are five of us, then we will either need to pull up a chair or sit at adjacent tables.

14. There are ten things on my desk; one of them is a pen and one of them is a book.

15. Either there are ten things on my desk or I miscounted, or you stole something off of it.

16. If I am thirty and you are thirty-five, then both of us (both you and I) are old enough to have seen episodes of Cheers.

17. There are no sandwiches left in the kitchen, and if there were, you could not have any.

18. *The Magnificent Seven*, the Western, is an adaptation of Kurusawa's classic film, *Seven Samurai.*

19. If I am awake and it is three o'clock in the morning, then either tomorrow is going to be a terrible day, or I will drink a lot of coffee.

20. If you drink a lot of alcohol and then try to drive, you not only increase your chances of an accident, you also increase your chances of hurting someone.

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B. Using the interpretations provided, translate the following claims of propositional logic into English.

1. [T = I throw the ball; W = The window will break.]
(T ⊃ W)

2. [R = You're a Republican; D = You're a Democrat.]
(((R v D) & ~R) ⊃ D)

3. [R = It is raining; S = The sidewalks are wet.]
(((R ⊃ S) & R) ⊃ S)

4. [S = It snowed; R = The roof collapsed.]
(((S ⊃ R) & ~R) ⊃ ~S)

5. [R = It is raining; B = I bring my umbrella; W = I get wet.]
((R & ~B) ⊃ W)

6. [B = The dog will bite; F = The dog is friendly; P = I will pet the dog.]
((B v F) & ((F ⊃ P) & (B⊃ ~P)))

7. [P = I pay for the ticket; K = I get kicked out.]
(~(~P ⊃ K) ⊃ ~P)

8. [P = I am a professor; D = I have a PhD; T = I have teaching experience.]
(P ≡ (D & T))

9. [P = He went to the park; R = He went to the restaurant; S = He is on the swings; J = He is on the jungle gym.]
((P v R) & ((P ⊃ (S v J))))

10. [D = She is a (medical) doctor; M = She went to medical school; L = She is licensed; I = She is immoral; H = She is a hack.]
((D ≡ M) & (~L ⊃ (I v H)))