Homework 5

Problem 1.

The following is an excerpt from a real clinical guideline. Please
represent it as a SINGLE well-formed formula (WFF) in propositional logic.

Testing for diabetes should be considered for all individuals age 45 and
older. Testing should be considered at a younger age, in individuals
who:
_ are obese
_ have a first-degree relative with diabetes
_ are members of a high-risk ethnic population (African American,
Hispanic, Native American, Asian)
_ are hypertensive
_ have an HDL cholesterol level less than or equal to 40 mg/dl and /or a triglyceride level
 greater than or equal to 150 mg/dl

Problem 2.

```
If (A == true) {
    if (B == false) {
        C =true
    }
    else {
        C=false
    }
}
else {
    C = false
}
```

Write a WFF in propositional logic to represent the logical relation
between A, B and C. (HINT: you may use a truth table.)

Problem 3.

Use truth table to determine which of the following formulas are
tautologies: (see attachment 1)

C: Congestive Heart Failure
F: Heart Failure

Problem 4. Flow chart is often used to represent clinical algorithms.
Please complete the following flow chart base on this well-formed
formula (WFF): (see attachment 2)

HR: High risk of lung cancer
Male: Being of the male gender
Smoker: having smoked for more than 5 years in their life
SF: lived with a smoker for more than 5 years in their life
FH: having a family history of lung cancer

* Please use each decision box to check only one variable. (as in attachment 3)