Consider the following five production rules:

R1: IF temperature is high
THEN pressure is high
R2: IF pressure is high
AND fluid level is high
THEN status is dangerous
R3: IF indicator is on
THEN temperature is high
R4: IF status is dangerous
THEN relay is on
R5: IF relay is on
AND standby unit is off
THEN indicator is on

Perform

a) Draw an AND/OR inference tree

b) List anomalies, if any

c) Indicate a possible source of inconsistency and modify appropriate production rule(s) to eliminate the anomaly

To eliminate the cycle R3 - R1 - R2 - R4 - R5, rules R3 and R5 are modified as follows:

R3: IF indicator is on
THEN temperature is high
R5: IF relay is on
AND standby unit is off
THEN indicator 2 is on

Old     New

A: temperature is high
B: pressure is high
C: fluid level is high
D: status is dangerous
E: indicator 1 is on
F: relay is on
G: standby unit is off
H: indicator 2 is on
Case Study 2-2

An expert in machine tool products has generated a few production rules.

a) Draw an AND/OR tree
b) List the sequence of firing the rules using the forward-chaining inference strategy