1. Choose the correct answer, and explain the false options.
2. When different instruction attempt to use the same resource at the same time, it cause structural hazards.
3. We Can resolve hazards only by waiting.
4. “Instruction i2 tries to read operand before instruction i1 write it” is the RAW type of data hazards, and MIPS only occur this type of data hazards.

(instruction i1 followed by instruction i2)

1. When solve data hazards, Compiler insert NOPs and forwarding is software solution ; stalls is hardware solution.
2. We don’t need to forward to solve hazard when instruction does not write register or destination is $0.
3. When handling stalls, in order not to change PC and IF/ID, we can let PCWrite, IF/IDWrite disable.

Ans：a. true

b. false, in sometime we can use forwarding to solve hazard.

c. true

d. false, Compiler insert NOPs (software) and Forward/Stall (hardware)

e. ture

f. true

Q: What are the 3 types of data hazards? and give brief explanation.

(inst. i1 followed by inst. i2)

A :

Raw - i2 try to read operand before i1 write it.

War - i2 try to write operand before i1 read it.

Waw – i2 try to write operand before i1 write it.