

1. Which one of the following is a technique to reduce penalty due to control hazards?
 - (a) predicting if branch is taken/not-taken
 - (b) wide register file
 - (c) very long instruction word
 - (d) shadow targets

Answer: (a)

2. Which one of the following is true about control hazards?
 - (a) All control hazards can be converted to an equivalent data hazard
 - (b) All control hazards can be converted to an equivalent structural hazard
 - (c) Control hazards occur during function call as well as function return
 - (d) Control hazards are negligible in long running loops

Answer: (c)

3. Which one of the following is a compiler's role, in reducing branch penalty in the pipeline?
 - (a) Replacing conditional branches with unconditional branches
 - (b) Replacing unconditional branches with conditional branches
 - (c) Scheduling useful instructions in the branch delay slot
 - (d) Making branch instructions always use the fp (frame pointer) register

Answer: (c)

4. Which of the following are true about 2-stage branch completion? Select all that apply.
 - (a) This is possible only for unconditional branches
 - (b) This requires the branch comparison to finish in about half a cycle time
 - (c) This requires the compiler to arrange branch instructions to be within 4 instructions of one another
 - (d) This requires the branch offset to be less than 256 in absolute value

Answer: (b)

5. On 30 June 2019, the UN Secretary General António Guterres said in a speech:

”Every week brings new climate-related devastation. Floods. Drought. Heatwaves. Wildfires. Superstorms.”

The global burned area measured based on satellite data shows ____ from 2003 to 2015

(House points question, optional)

- (a) a 50% increase
- (b) a 100% increase
- (c) no significant increase or decrease
- (d) a 20% decrease

Answer: (d)