20 Lecture - CS501

Important Mcqs

1. **What is a hazard in pipelining?**
   a) A condition where the pipeline execution is stalled
   b) A condition where the pipeline execution continues uninterrupted
   c) A condition where the pipeline execution reverses
   d) A condition where the pipeline execution stops completely
   Answer: a) A condition where the pipeline execution is stalled

   What is a data hazard?
   a) A hazard caused by the use of a shared resource
   b) A hazard caused by an instruction that changes the program counter
   c) A hazard caused by a dependency between two or more instructions
   d) A hazard caused by a structural limitation in the pipeline design
   Answer: c) A hazard caused by a dependency between two or more instructions

   What is a structural hazard?
   a) A hazard caused by an instruction that changes the program counter
   b) A hazard caused by a dependency between two or more instructions
   c) A hazard caused by a structural limitation in the pipeline design
   d) A hazard caused by the use of a shared resource
   Answer: c) A hazard caused by a structural limitation in the pipeline design

   What is a control hazard?
   a) A hazard caused by a dependency between two or more instructions
   b) A hazard caused by an instruction that changes the program counter
   c) A hazard caused by a structural limitation in the pipeline design
   d) A hazard caused by the use of a shared resource
   Answer: b) A hazard caused by an instruction that changes the program counter

   What is pipeline latency?
   a) The number of pipeline stages in the pipeline
   b) The time required to complete one pipeline stage
   c) The total time required to complete a sequence of pipeline stages
   d) The time required to switch between pipeline stages
   Answer: c) The total time required to complete a sequence of pipeline stages

   What is pipeline throughput?
   a) The time required to complete one pipeline stage
   b) The total time required to complete a sequence of pipeline stages
   c) The number of pipeline stages in the pipeline
   d) The rate at which instructions are completed by the pipeline
   Answer: d) The rate at which instructions are completed by the pipeline

   How can data hazards be resolved in pipelining?
   a) By inserting NOP instructions

b) By reordering instructions
c) By forwarding data between pipeline stages
d) By stalling the pipeline
Answer: c) By forwarding data between pipeline stages

How can structural hazards be resolved in pipelining?
a) By inserting NOP instructions
b) By reordering instructions
c) By forwarding data between pipeline stages
d) By adding additional resources
Answer: d) By adding additional resources

How can control hazards be resolved in pipelining?
a) By inserting NOP instructions
b) By reordering instructions
c) By forwarding data between pipeline stages
d) By using branch prediction
Answer: d) By using branch prediction

Which type of hazard can be resolved by instruction reordering?
a) Data hazards
b) Structural hazards
c) Control hazards
d) All of the above
Answer: d) All of the above