

INTERRUPT

Total Points: 70 | Questions: 7 | Date: February 20, 2026

AI-generated graduate-level computer eng assignment. Contains 7 questions covering key concepts. Includes content from 1 document(s).

Question 1

10.0 points

Explain the concept of an interrupt in a computer system and its significance in real-time processing.

Question 2

10.0 points

Calculate the time taken to process a single interrupt given a clock cycle time of 2 ns and an interrupt handler that takes 50 cycles to execute.

Question 3

10.0 points

Analyze the diagram below showing an interrupt handler workflow where an interrupt request is received, prioritized, and processed. Describe how the priority mechanism facilitates task handling.

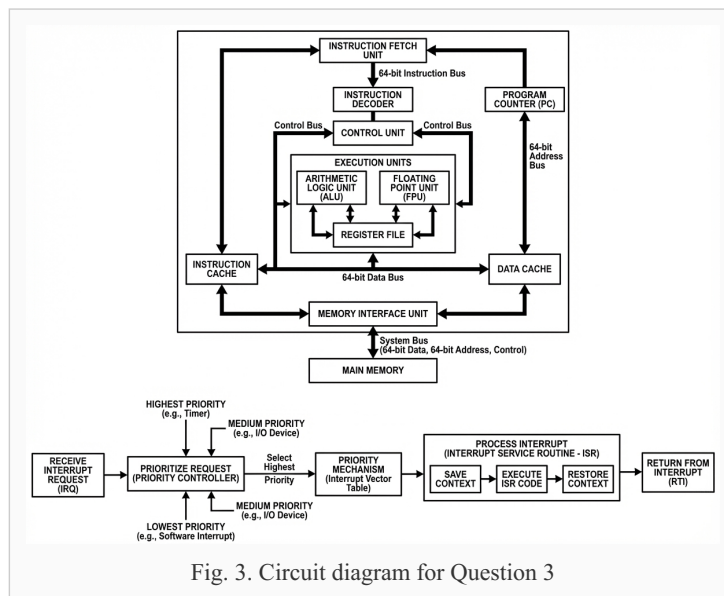


Fig. 3. Circuit diagram for Question 3

Question 4

10.0 points

Differentiate between hardware and software interrupts with examples for each.

Question 5

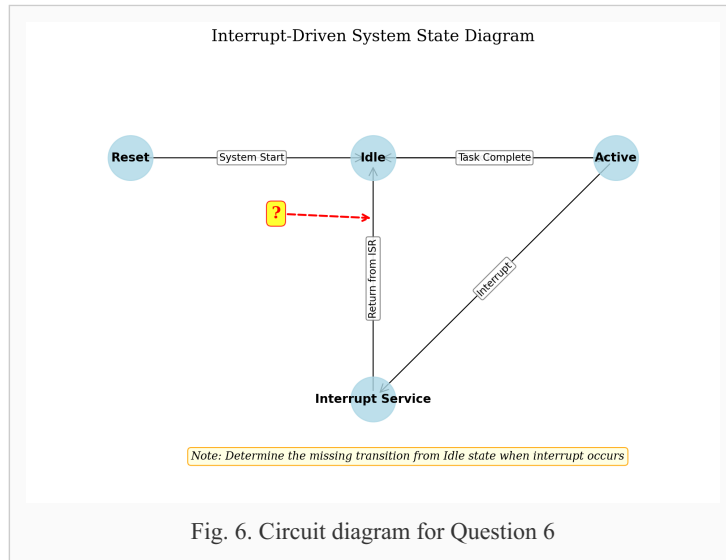
10.0 points

Determine the priority of an interrupt given a priority encoded value of 110 and a 3-bit priority encoder, with the highest priority being 111.

Question 6

10.0 points

In the diagram below, describe the transitions that occur when an interrupt happens while the system is in the "Idle" state.



Question 7

10.0 points

Describe how a nested interrupt works in a system and provide an example of its application using the diagram below.

