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EC - 311 Microprocessor Architecture and Applications

Attempt any 5 questions. Give importance to specifics and details.

Max Marks: 50

Time Limit: 180mins

1. Draw the timing diagram for PUSH B present at the location 1234H. [10]

2. Write short notes on 8155 and how 8155 can be programmed for I/O and timer function. Explain with code examples. [10]

3. Draw a clean memory & I/O interface diagram with 8085 for the following specifications:
8-bit Switch: 3FH
7-Segment Display: 0FH
Data ROM (1K Bytes): 8000H to 8FFFH
Data RAM (1K Bytes): FC00H to FFFFH
Program ROM (1K Bytes): 7000H to 7FFFH
Also discuss the interface method used for each external chip. [10]

4. Explain in detail the working of a DMA, its features and program to transfer bulk data from one memory to another memory. [10]

5. Write detailed notes on the architecture of 8086, its programmer's model and addressing modes. List any 5 unique features of 8086 compared to 8085 processor with examples. [10]

6. In a nuclear reactor, if the pressure is greater than 110%, then turn on a release valve to release pressure. If the temperature of the fuel rods is greater than 120% then start the emergency cooling sequence. If the coolant flow rate is < 90% then start an alternate cooling sequence. If there is a leak and radiation levels are more than the permissible limits, then initiate an emergency evacuation and shut down. Use the 8085 interrupts to manage this nuclear reactor. Let the main program continue to read all these values and display in a sequence. Draw the interface diagram and write the complete program to manage the interfaces. Assume addresses and values as seems appropriate. [10]