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| EWULogo.png | | **EAST WEST UNIVERSITY** | | |
| **Department of Computer Science and Engineering** | | |
| **B.Sc. in Computer Science and Engineering Program** | | |
| **Mid Term II Examination, Spring 2020** | | |
| **Course:** | | **CSE442 – Microprocessors and Microcontrollers, Section 2`** | |  |
| **Instructor:** | | **Md. Nawab Yousuf Ali, PhD, Associate Professor, CSE Department** | |  |
| **Full Marks:** | | **20** | |  |
| **Time:** | | **1 Hour and 20 Minutes** | |  |
| **Note:** There are SIX questions, answer ALL of them. Course Outcome (CO), Cognitive Levels and Mark of each question are mentioned at the right margin. | | | | |
| 1. | **Design** a fully buffered 8088 microprocessor. Illustrate the address connections, data connections, transparent latches and all necessary control signals for proper operations. | | [ CO2, C6, Mark: 4] | |
| 2. | **Design** an interface between a memory 27128EPROM and Intel 8086 microprocessor using a NAND gate decoder. Determine the memory location decoded by NAND gate. Illustrate the output of the NAND gate and show the inputs of the control signals for reading data. | | [ CO2, C6, Mark: 3] | |
| 3. | **Design** a circuit to execute assembly language instruction **IN AL, C5H** in 8088 microprocessor**.** Illustrate all the circuits, toggle switches, resistors, and signals for proper operation. | | [ CO2, C6, Mark: 3] | |
| 4. | **Analyze** the diagram and determine the LED lights that will be glown by the given configuration of the toggle switches in Figure 1. Write the assembly language program for the output. Draw the output. | | [ CO2, C3, Mark: 3] | |
|  | Figure 1. Seven segment display | |  | |
| 5. | **Design** a circuit that applies an interrupt vector Type 8 in response to INTA. Illustrate all necessary devices and signals for proper operation. Calculate the segment and offset addresses for the interrupt vector. | | [ CO2, C6, Mark: 4] | |
| 6. | **Generate** the Vector Number from (Figure-2) and calculate the corresponding ISR (Interrupt Service Routine) address (from Table 1) in real mode 8088 processor.    **Figure 2. 8-bit interrupt number generator circuit**  C8H  CCH | | [CO2, C3, Mark: 3] | |
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