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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, Fall 2019** | | |
| **Course:** | | **CSE442 – Microprocessors and Microcontrollers, Section 1`** | |  |
| **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** an interface between a memory 27512EPROM 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.  **Address connections: 16 (A0-A15)**  **A19 A18 A17 A16 A15 A14 A13 A12 A11 A10 A9 A8 A7 A6 A5 A4 A3 A2 A1 A0**  **1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0**  **F 0 0 0 0H**  **To**  **F F F F FH**  **Memory address decoded by NAND gate is: F0000H-FFFFFH** | | [ CO2, C6, Mark: 4] | |
| 2. | **Design** a circuit to execute assembly language instruction **IN AL, E9H** in 8088 microprocessor**.** Illustrate all the circuits, toggle switches, resistors, and signals for proper operation. | | [ CO2, C6, Mark: 3] | |
| 3. | **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: 4] | |
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| 4. | **Design** a circuit that applies an interrupt vector type number 3CH in response to INTA. Illustrate all necessary devices and signals for proper operation. | | [ CO2, C6, Mark: 3] | |
| 5. | **Analyze** the clock generator 8284A for 8086/8088 microprocessor given in Figure 2. Determine the output for the following operations in a tabular form as indicated below.   1. When F/C=0 2. When F/C=1  |  |  |  |  | | --- | --- | --- | --- | |  | **OSC** | **PCLK** | **CLK** | | a) |  |  |  | | b) |  |  |  |     **860 MHz** | | [CO2, C3, Mark: 3]  **CLK**  **PCLK**  **OSC** | |
| 6. | **Generate** the Vector Number from (Figure-3) and calculate the corresponding ISR (Interrupt Service Routine) address (from Table 1) in real mode 8088 processor.    C8H  CCH | | [CO2, C3, Mark: 3] | |