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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 2019** | | |
| **Course:** | | **CSE442 – Microprocessors and Microcontrollers, Section-2** | |  |
| **Instructor:** | | **Md. Nawab Yousuf Ali, PhD, Associate Professor, CSE Department** | |  |
| **Full Marks:** | | **20 (15 mark will be counted for final grading)** | |  |
| **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 RAM chip with all control signals having 512 KB of memory location. | | [CO2, C3, Mark: 2] | |
| 2. | Design an interface between a memory 27128EPROM and Intel 8086 microprocessor using a NAND gate decoder. Calculate the memory location decoded by NAND gate. Determine the output of the NAND gate and show the inputs of the control signals for reading data. | | [ CO2, C3, Mark: 4] | |
| 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 R-C circuit to generate RESET signal for 8086 microprocessor. Show the input voltage of Schmitt trigger, digital input and output signals of D flip-flop and RESET signal of the 8086 microprocessor. | | [ CO2, C3, 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=1 2. When F/C=0  |  |  |  |  | | --- | --- | --- | --- | |  | **OSC** | **PCLK** | **CLK** | | a) |  |  |  | | b) |  |  |  | | | [CO2, C3, Mark: 3] | |
| 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.   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Figure 3. 8-bits interrupt number generator circuit. | | |  |  | | --- | --- | | Vector# | Addresses (Segment & Offset) | | 80H | 87H | | …… | …… | | 3FH | 5DH | | 3EH | 23H | | 3DH | FEH | | 3CH | 12H | | 3BH | F1H | | 3AH | 4CH | | 39H | 40H | | 38H | 10H | | …. | ….. | | 1FH | 1CH | | 1EH | 1AH | | 1DH | 10H | | 1CH | 12H |   Table-1: Interrupt Vector Table | |  |  | | | | [CO2, C3, Mark: 4] | |