CSE-3105 (Microprocessors and Micro-controller)

Date: 16 July 2020

Topics of Lecture 27, Lecturer 28 and Lecture 29:

Q1. Write the working principle of 8255A PPI Mode 1 strobed input operation with circuit diagram and transition diagram. Also explain with suitable example.

Q2. Write the working principle of 8255A PPI Mode 1 strobed output operation with circuit diagram and transition diagram. Explain briefly with example.

Q3. Draw the circuit diagram and transition diagram of 8255A PPI Mode 2 bidirectional I/O operation.

Q4. Which mode works with which port in 8255A PPI? Explain briefly.

Q5. How can you interface a computer with real world? Explain with necessary figure.

Q6. What are the purposes of using Analog to Digital Converter (ADC) and Digital to Analog Converter (DAC)? Explain with example.

Q7. Explain the working procedure of a DAC operation with block diagram and corresponding inputs and outputs.

Q8. Define resolution or step size with proper diagram.

Q9. What is percentage resolution and how can you calculate it? Write with example.

Q10. Solve the following problems:

- **(i)** A 5-bit DAC has a current output. For a digital input of 101000, an output current of 10mA is produced. What will I_{OUT} be for a digital input of 11101?
- **(ii)** What is the largest value of output voltage from an 8-bit DAC that produces 1.0V for a digital input of 00110010?
- **(iii)** A 10-bit DAC has a step size of 10 mV. Determine the full-scale output voltage and the percentage resolution.