

## ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)

## ORGANISATION OF ISLAMIC COOPERATION (OIC)

**Department of Computer Science and Engineering (CSE)****MID SEMESTER EXAMINATION****SUMMER SEMESTER, 2017-2018****DURATION: 1 Hour 30 Minutes****FULL MARKS: 75****CSE 4619: Peripherals and Interfacing****Programmable calculators are not allowed. Do not write anything on the question paper.**There are **4 (four)** questions. Answer any **3 (three)** of them.

Figures in the right margin indicate marks.

- 
1. a) Write a short comparison on Microprocessor and Microcomputer. 10  
 b) Differentiate amongst the followings: 10  
     i. Tiny, Mega and XMega AVR's.  
     ii. Synchronous and Asynchronous Transmission.  
 c) Suppose, you are given an analog quantization size of *1.50 Volt*, where  $V_{min}=0\text{ Volt}$  and  $V_{max}=20\text{ Volt}$ . Calculate the desired number of bits for an A/D converter. 5
  
  2. a) What is Aliasing Problem? How to solve it? Briefly explain the conditions to ensure accurate and precise A/D data conversion. 10  
 b) Write the pros and cons of *Delta-Sigma* and *Flash* A/D converter. 8  
 c) Suppose, it is given  $V_{in} = 0.85\text{ Volt}$ ,  $V_{ref} = 1\text{ Volt}$  and *8-bit* of resolution for a *Successive Approximation* A/D converter. Find the *6-bit* digital output for the given  $V_{in}$ . 7
  
  3. a) Differentiate between the working principle of *Weighted Sum* and *R-2R Ladder D/A* conversion method. 10  
 b) Suppose, a control register of 8155 PPI has an address of 20h. If the following instructions are executed in an 8085 microprocessor system, then derive the all the port functionalities (i.e., including pins) of the 8155 PPI. 10  
     MVI A, ABh  
     OUT 20h  
 c) Write the taxonomy of models of transfer in Peripherals and Interfacing along with their features. 5
  
  4. a) 'Data transfer with Interrupt is a microprocessor controlled approach, whereas data transfer with Direct Memory Access (DMA) is a peripheral controlled approach' – True or False? Justify your answer. 10  
 b) Suppose, in a serial system total 30 frames (each having a size of 5 bytes) need to be transmitted. In case of *asynchronous transmission*, 1 byte overhead occurs either for *start* or *stop* byte. In contrast, for *synchronous transmission* 1 byte of synchronization overhead occurs after each 5 frame transmissions. Mathematically show the performance efficiency comparison between *Synchronous Transmission* and *Asynchronous Transmission*. 10  
 c) Write a short note on input handshake signals of 8155 Programmable Peripheral Interface. 5