

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**ME Semester –III Examination Dec. - 2011**

**Subject code: 730406**

**Date: 08/12/2011**

**Subject Name: Peripheral System Design & Interfacing**

**Time: 10.30 am – 01.00 pm**

**Total Marks: 70**

**Instructions:**

- 1. Attempt all questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**

- Q.1**
- (a)** Discuss various bus architectures and compare different PC buses. **07**
  - (b)** Explain extended ISA (EISA) architecture in brief and describe how the ISA connector is modified to accommodate EISA interface? **07**

- Q.2**
- (a)** Give answer of following questions. **07**
    - (i) What are the major advantages offered by PCI bus? What is the purpose of the configuration memory found on the PCI bus?
    - (ii) Discuss benefits of PCI bus for various applications.
  - (b)** Give answer of following questions. **07**
    - (i) Can I connect a serial A/D to my computer's Serial port? If yes what are the problems? What is Bit-Banging?
    - (ii) Compare serial data transfer with parallel data transfer and state advantages of using serial data transfer rather than parallel.

**OR**

- (b)** Give answer of following questions. **07**
  - (i) Describe operating modes of IEEE 1284 standard for parallel port in brief.
  - (ii) Draw a timing diagram and explain how handshaking is implemented using the standard 'Centronics' protocol, when printing via the Parallel Printer Port on a PC.

- Q.3**
- (a)** Give answer of following questions. **07**
    - (i) Explain RS-449 communication interface in brief.
    - (ii) Describe current loop interface.
  - (b)** Explain RS232 C standard with its voltage level and connectors. Also mention its features and limitations. **07**

**OR**

- Q.3**
- (a)** Give answer of following questions. **07**
    - (i) Explain RS-232 level converter.
    - (ii) What is the use of null modem? Draw the wiring diagram for implementing the null modem.
  - (b)** Discuss GPIB signals and explain GPIB standard with the flow of data transfer handshake waveforms. **07**

- Q.4**
- (a)** List various schemes for memory contention control of a CRT display system. Explain CRT display system with transparent addressing. **07**
  - (b)** Draw and explain block diagram of PID controller. Also give its limitations. **07**

**OR**

- Q.4 (a)** Elaborate the need of a dedicated Keyboard/Display controller. Draw and discuss architecture of the Keyboard/Display controller 8279. **07**
- (b)** Give answer of following questions. **07**
- (i) Write general function of CRT controller. What is the principle of displaying characters or graphic on CRT screen?
  - (ii) Describe VESA local bus including its flaws.

- Q.5 (a)** What is the advantage of DMA controlled data transfer over interrupt driven or program controlled data transfer? Draw and discuss the architecture of 8257 DMA controller. **07**
- (b)** Give answer of following questions. **07**
- (i) Describe Programmable logic controllers with its features. Also list Traditional PLC applications, advantages and disadvantages of PLC control.
  - (ii) What is data acquisition system?

**OR**

- Q.5 (a)** Write brief note on GPIB and GPIB programming techniques. Also mention advantages and disadvantages of GPIB. **07**
- (b)** Give answer of following questions. **07**
- (i) What do you understand by Microprocessor Development System (MDS)? What are its hardware and software support?
  - (ii) What is in- circuit emulators? Discuss its function in brief.

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