





FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, JUNE 2005

CS/IT 2K 406/PTCS 2K 405. HARDWARE SYSTEMS DESIGN

(New Scheme)

Time : Three Hours

1.

Maximum : 100 Marks

Answer all the questions.

- (a) Differentiate between a serial interface and a parallel interface.
- (b) With an appropriate diagram, explain the working of a clock generator.
- (c) Code a descriptor that describes a memory segment that begins at location O3OOOOOOH and ends at location O5FFFFFFH. This memory segment is a data segment that grows upward in the memory system and can be written. The descriptor is for an 80386 microprocessor.
- (d) What is the difference between an intersegment jump and an intrasegment jump?
- (e) With a diagram, explain the address, data and control connections of a pseudo memory component.
- (f) Program the 16550 for operation using six data bits, even parity, one stop bit, and a band rate of 19,200 using a 18.432 MHz clock. Assume that the I/O ports are numbered 20 H and 22 H.
- (g) Explain why pull-up resistors on D_0-D_7 cause the microprocessor to respond with interrupt vector type number FFH for the INTA pulse.
- (h) Draw the timing diagram generated to write a 1001010000 using MFM encoding.

Or

 $(8 \times 5 = 40 \text{ marks})$

2. (a) What is a LAN ? How is it useful ? What are its different topologies ? Explain the working of each.

(15 marks)

	 (b) (i) Explain the minimum mode of operation of an 8086/88 microprocessor. (ii) With a diagram, explain the 8086/88. Write bus cycle. 	(8 marks) (7 marks)
3	3. (a) Briefly explain the real mode memory addressing in an 80286 processor.	(Timurks)
	Or	
	(b) What are the types of program memory addressing ? Explain with examples.	
4	(a) With an appropriate diagram and in the	(15 marks)
	<i>Or</i>	(15 marks)
	(b) (i) Differentiate between a memory mapped I/O and an I/O mapped I/O.	(4 marks)
	(ii) What are the functions of an I/O interface ?	(4 marks)
	(iii) Explain how decoding of an 8 bit I/O address is done.	(7 marks)
		Turn over

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in the memory statem and can be written. The descriptor is for an 20036 microprotector.

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5. (a) Comment on the issues related to expanding the interrupt structure.

(15 marks)

- (b) Write short notes on :
 - (i) Video displays.
 - (ii) ISA Bus.

Maximum : 160 Marica

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(7 marks) (8 marks)

 $[4 \times 15 = 60 \text{ marks}]$

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