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Code No: 07A7EC43 **R07** **Set No. 2**

IV B.Tech I Semester Examinations,November 2010
MICROPROCESSORS AND MICRO CONTROLLERS
Common to Mechatronics, Automobile Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Give the hardware details of 4 × 4 matrix keyboard interfaced to 8051.
   (b) Give the software details of 4 × 4 matrix keyboard interfaced to 8051. [8+8]
2. (a) Explain internal and external interrupts of 8051.
   (b) Explain the following pins of 8051.
      i. $\overline{PSEN}$
      ii. $\overline{EA}$
      iii. ALE [10+6]
3. (a) Explain briefly about the string manipulation in 8086.
   (b) Write an ALP to convert a four digit hexa decimal number to decimal number. [10+6]
4. (a) What is the use of Mode 0 of serial communication in 8051. Write a program to transmit a data 45H in mode 0.
   (b) What are the various SFRs you need while handling the Timers/Counters. Give the register formats. [8+8]
5. (a) Explain the construction of stepper motor in brief.
   (b) Design a stepper motor controller and write an ALP to rotate shaft of a 4-phase stepper motor with 200 rotor teeth, for 5 rotations in clockwise direction. [6+10]
6. (a) Draw the asynchronous and synchronous formats and discuss the differences.
   (b) Explain the interfacing of 8251 with 8086 with an example circuit. [8+8]
7. (a) Discuss the Flag manipulation and processor control instructions of 8086
   (b) Discuss the following interface signals of 8086 in minimum mode
      i. Address/Data bus
      ii. Status signals
      iii. Control signals. [8+8]
8. (a) Explain the various operating modes of 8259.
   (b) Discuss the priorities of DMA request inputs of 8257. [8+8]

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Code No: 07A7EC43 **R07** **Set No. 4**

IV B.Tech I Semester Examinations,November 2010
MICROPROCESSORS AND MICRO CONTROLLERS
Common to Mechatronics, Automobile Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Write short notes on the following:
   (a) Stack segment and stack pointer of 8086
   (b) The execution unit of 8086
   (c) Physical memory organization of 8086. [16]
2. (a) Explain the pin diagram of 8255 PPI
   (b) Explain I/O modes of operation of 8255 PPI. [8+8]
3. Discuss the following signals of 8051
   (a) $\overline{INT0}$ / $\overline{INT1}$
   (b) $\overline{RD}$
   (c) $\overline{PSEN}$
   (d) ALE
   (e) T0 and T1
   (f) $\overline{EA}$
   (g) TxD
   (h) RxD [16]
4. (a) What are the development phases in a project? Explain software development cycle for project.
   (b) Explain the uses of editior compiler. [10+6]
5. (a) What are the hardware interputs related to external sources in 8051/52 families?
   (b) Explain how do you disable all interrupts during a critical region in a program. [8+8]
6. (a) Write an 8086 Assembler Program that adds two given 4-digit BCD numbers
   (b) How do you pass parameters to a MACRO? [12+4]
7. (a) Explain pin diagram of 8259 PIC
   (b) Explain the interrupt sequence in 8086 system. [10+6]

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8. (a) Write an 8086 instruction sequence for transmitting the characters using 8251 on a polled basis.

   (b) Write an 8086 instruction sequence for receiving 100 characters using 8251 on a polled basis and store them in memory at location 2050H. [8+8]

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Code No: 07A7EC43 **R07** **Set No. 1**

IV B.Tech I Semester Examinations,November 2010
MICROPROCESSORS AND MICRO CONTROLLERS
Common to Mechatronics, Automobile Engineering

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
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1. (a) Discuss the applications of microcontrollers.
   (b) Explain the interfacing of latch with an 8051 microcontroller with neat diagram. [8+8]
2. (a) Explain the following Assembler Directives
      i. ASSUME
      ii. ENDS
      iii. EVEN
      iv. OFFSET
      v. PUBLIC
   (b) Write an ALP to perfom the division operation on two 16 bit Hex numbers. [10+6]
3. (a) Discuss in detail about memory and I/O interfacing of 8051.
   (b) Describe salient features of 8051 family of microcontrollers. [10+6]
4. (a) Draw the circuit of TTL to RS232 conversion and explain the necessity of this interface.
   (b) Draw necessary circuit to interface 8251 to an 8086 based system with an address A0H. Write the sequence of instructions to initialize 8251 for synchronous transmission with odd parity, single SYNC character, 8 bit data character. [6+10]
5. (a) Explain the logical rotate instructions of 8086.
   (b) Explain any three string manipulation instructions of 8086. [8+8]
6. (a) How does the timer overflow interput differ from the real-time clock interrupts? Give four applications of the real-time clocked interrupt.
   (b) Describe the concept of intrrupt intervals. [10+6]
7. (a) Explain the intialiazation sequence of 8259.
   (b) Write about the command words of 8259. [8+8]
8. (a) Explain briefly interfacing of key board controller with 8086.
   (b) Explain I / O modes of operation of 8255. [10+6]

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Code No: 07A7EC43 **R07** **Set No. 3**

IV B.Tech I Semester Examinations,November 2010
MICROPROCESSORS AND MICRO CONTROLLERS
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Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Draw the pin diagram of 74LS573 latch and write 8051 program to output the data on port P1. Use P3.0 for latch pin.
   (b) Explain the interfacing of the external program memory to 8051 using 74LS573 latch with a neat diagram and draw the waveforms. [8+8]
2. (a) Draw the waveforms and explain the sequence of signals on the handshake lines for a transfer of data from a talker to several listeners in IEEE- 488?
   (b) Mention and Explain the General interface management lines. [10+6]
3. (a) Explain briefly the architecture of 8086 processor with neat diagram.
   (b) Write a short notes on flag register of 8086. [10+6]
4. Explain the internal architecture of 8259 PIC with a neat block diagram. [16]
5. (a) Discuss in detail about 8051 instruction set.
   (b) Give the comments for the following instructions.
      i. MOV @R_P, #n
      ii. MOV A, 80h
      iii. MOV 0A8h, 77h
      iv. MOV A, add
      v. MOV add, @R_P
      vi. MOV A, @R_0 [10+6]
6. (a) Explain the pooling mechanisms to select an interrput among the pending intrupts in 8051? How will you enforce the polling at the end of the current ISR only in 8051?
   (b) Define interupts laterncy. [12+4]
7. (a) Write and ALP that goes on accepting the keyboard entries end display them on timeon the CRT display me control escapes to DOS prompt it enter key is pressed.
   (b) Write a short notes on Linkes. [10+6]
8. (a) Explain about the programmed I / O.
   (b) Explain about the interrupt driven I / O. [8+8]

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