

IV B.Tech II Semester Regular Examinations, Apr/May 2006**MICROPROCESSORS****(Common to Mechanical Engineering and Automobile Engineering)****Time: 3 hours****Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain various interrupt of 8085 Microprocessor and their priorities.
(b) Explain the
 - i. SID
 - ii. SOD
 - iii. S_0, S_1 ,
 - iv. \overline{INTA} pins of 8085 Microprocessor[8+8]
2. (a) Explain the flag register of 8086.
(b) Explain the concept of memory segmentation.
(c) Explain, when Queue is failing to speed up the execution. [6+6+4]
3. (a) Write a program to check whether the given string is palindrome or not.
(b) Briefly explain about following instructions.
 - i. ADD
 - ii. NEG
 - iii. AAM
 - iv. DIV[8+8]
4. (a) What is the necessity of NEAR or FAR attribute in PROC statement?
(b) Give the sequence of instructions that would cause the register SI to be loaded from an externally defined variable COUNT ?
(c) What is the necessity of relocation? Explain the support provided by 8086 for relocation capability? [4+4+8]
5. Assume that the symbol table starting at location TABLE consists of 100 entries. Each entry has 80 bytes with the first 8 bytes representing the name field and the remaining 72 bytes representing the information field. Write an instruction sequence to search this table for a given name of 8 characters stored in NAME. If the name is found, copy the associated information into INFO, otherwise, fill INFO with null characters? [16]
6. It is necessary to serve 15 interrupt requests using 8259's. The address map for the 8259's is given from 0100H to 0103H. Show the complete interface with 8086 system bus? These 15 interrupts are to be requested from interrupt type 060H on words, with level triggered mode and auto end of interrupt. Give the initialization sequence for all 8259's. [16]

7. What is the difference between simple I/O, strobbled I/O and bi-directional I/O with reference to 8255? Discuss the required control signals and their timing sequence for each mode of operation? [16]
8. (a) Discuss the serial data transmission standards and their specifications?
- (b) A terminal is transmitting asynchronous serial data at 2400 bd. What is the bit time? Assuming 7 data bits, a parity bit and 1 stop bit how long does it take to transmit one character? [8+8]

IV B.Tech II Semester Regular Examinations, Apr/May 2006**MICROPROCESSORS****(Common to Mechanical Engineering and Automobile Engineering)****Time: 3 hours****Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What is a Microprocessor?
(b) Explain in detail the pin diagram of 8085 Microprocessor. [6+10]
2. (a) Explain the different types of addressing modes used for indicating branch addresses in 8086.
(b) Explain the timing diagram for a write cycle of 8086. [8+8]
3. (a) Explain the following Instructions.
 - i. MOV
 - ii. POP
 - iii. XCHG
 - iv. SAHF(b) Write a program to convert a Binary Number to a BCD Number. [8+8]
4. Write a FAR procedure SER_ WORD that searches a word array for a given word and sets the value of a word parameter to the index of the element in the array if a match is found; otherwise, it puts a -1 in the index word parameter. The parameters are to be passed to the procedure via a parameter address table. Give a sequence for calling SER_ WORD to search ARRAY_ 1 of length LENGTH_ 1 for variable 'ID' and put the index in INDEX - 1? [16]
5. (a) Write an instruction sequence that converts 8-digit packed BCD number to its equivalent ASCII coded hex number.
(b) Write a program segment that will copy all ASCII characters in string STG that are enclosed by single quotes to the string MSG and store the number of characters moved in COUNT? [8+8]
6. (a) Show the circuit required to generate the upper and lower I/O strobes in minimum and maximum modes of 8086?
(b) What is the minimum no. of bus cycles that can occur between the time an interrupt request is recognized and the first instruction in the interrupt service routine is fetched. Show the interrupt acknowledge cycle with a flow chart? [8+8]
7. (a) A DAC is interfaced to 8255 with an address map of 0800H to 0803H. Give the hardware design? It is necessary to design a counter type ADC with the same 8255 and DAC using a comparator. Give the necessary hardware? Provide the necessary instruction sequence to store a sample in location sampleone?

- (b) Using the above hardware write the instruction sequence for successive approximation ADC? [8+8]
8. (a) Why are the two ground pins on an RS 232C connector not just tied together?
- (b) Explain the RS-232C to TTL interfacing?
- (c) Write a sequence of instructions to communicate to a modem using 8251 at address 080H. [4+6+6]

IV B.Tech II Semester Regular Examinations, Apr/May 2006**MICROPROCESSORS****(Common to Mechanical Engineering and Automobile Engineering)****Time: 3 hours****Max Marks: 80****Answer any FIVE Questions
All Questions carry equal marks**

1. (a) Explain the difference between Machine Language, Assembly Language and High Level language.
- (b) Explain the requirement of a program counter, stack pointer and status flags in the architecture of Intel 8085 Micro process. [8+8]
2. (a) Explain the different types of addressing modes used for indicating branch addresses in 8086.
- (b) Develop the machine code for the following
 - i. MOV BX, 2000
 - ii. MOV AX, [6000]
 - iii. MOV CX, DX Take 6 bit code for MOV = 100010 [8+3+3+2]
3. (a) Explain the following Instructions.
 - i. MOV
 - ii. POP
 - iii. XCHG
 - iv. SAHF
- (b) Write a program to convert a Binary Number to a BCD Number. [8+8]
4. Write a recursive routine to evaluate the following polynomial $Y = A_0 + A_1X + A_2X^2 + A_3X^3 + \dots + A_NX^N$ The coefficients $A_0, A_1, A_2, \dots, A_N$ are to be successive words in memory and all parameter addresses are to be passed via the stack. [16]
5. (a) Explain string instructions supported by 8086 processor?
- (b) Give the instruction sequence that compares the first 10 bytes beginning at STRG_1 with the first ten bytes beginning at STRG_2 and branches to MATCH if they are equal, otherwise continues in sequence? [8+8]
6. (a) What is the minimum no. of bus cycles that can occur between the time an interrupt request is recognized and the first instruction in the interrupt service routine is fetched. Show the interrupt acknowledge cycle with a flow chart?
- (b) Show the complete hardware design to resolve multiple interrupts based on priority using Daisy chain? [8+8]
7. What is the difference between simple I/O, strobed I/O and bi-directional I/O with reference to 8255? Discuss the required control signals and their timing sequence for each mode of operation? [16]

8. (a) Draw the command register and mode register format of 8237 and explain each bit?
- (b) Show how 8237s are cascaded to provide more number of DRQs and explain the operation?
- (c) Explain how memory to memory transfer is performed with 8237? [6+5+5]

IV B.Tech II Semester Regular Examinations, Apr/May 2006
MICROPROCESSORS
(Common to Mechanical Engineering and Automobile Engineering)
Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What is a Microprocessor?
(b) Explain in detail the pin diagram of 8085 Microprocessor. [6+10]
2. (a) Explain the flag register of 8086.
(b) Explain the concept of memory segmentation.
(c) Explain, when Queue is failing to speed up the execution. [6+6+4]
3. (a) Write a program to move a block of memory with out over lapping.
(b) Write about the following instructions.
 - i. ADC
 - ii. AAS
 - iii. IMUL
 - iv. CBW [8+8]
4. Write a FAR procedure SER_ WORD that searches a word array for a given word and sets the value of a word parameter to the index of the element in the array if a match is found; otherwise, it puts a -1 in the index word parameter. The parameters are to be passed to the procedure via a parameter address table. Give a sequence for calling SER- WORD to search ARRAY- 1 of length LENGTH- 1 for variable 'ID' and put the index in INDEX_1? - [16]
5. (a) Write an assembly language program that will examine an ASCII string of 100 characters and replace each decimal digit by a %. The character string starts at STRG.
(b) Explain the prefix instruction format of 8086 processor? Discuss how these instructions are useful in string manipulation? [8+8]
6. (a) Give the instruction format of IN and OUT instructions and explain?
(b) Draw a flow chart showing how a block of N bytes are inputted to memory using programmed I/O transfer? [8+8]
7. Explain how to interface a stepper motor with 4-step input sequence to 8086 based system with the help of hard ware design? Write the instruction sequence to move the stepper motor 10 steps in clockwise and 12 steps in anti-clockwise direction. [16]
8. (a) How do we connect RS-232C equipment

- i. To data terminal type devices?
 - ii. To serial port of SDK 86, RS-232C connection? [4+4]
- (b) Draw the block diagram of 8272 floppy disk controller and explain each block? [8]

★ ★ ★ ★ ★