

Code No: RR321402

RR

Set No. 2

III B.Tech II Semester Examinations, December 2010

MICROPROCESSORS

Mechatronics

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) How many initialization command words are required for a single 8259 in an 8086 based system? Explain their format?
(b) Under what conditions type 0 interrupt is initiated? List out the instructions that may cause type 0 interrupt? [8+8]
 2. (a) Explain the Flag register of 8085 Microprocessor.
(b) Explain the following pins of 8085 Microprocessor.
 - i. RST 5.5
 - ii. RST 6.5
 - iii. READY
 - iv. \overline{INTA}
 - v. X_1, X_2
- [6+10]
3. (a) Define a macro for moving an arbitrary character string that ends with an EOT character from one string of bytes in memory to another?
(b) Write a procedure COMPUTE for performing the computation $R \leftarrow X + Y - 3$. The word variables X, Y, R and COMPUTE are in the same code segment. The variables X and Y are defined in data segment D1_SEG. The data segment D2_SEG contains the variable R. Show the necessary definition along with the procedure? [8+8]
 4. (a) Draw the command register and mode register format of 8237 and explain each bit?
(b) 8251 is interfaced to 8086 processor at address 080H. Show the hardware design? Initialize it in asynchronous mode with even parity, 6-data bits, baud rate factor 1, one start bit and one and half stop bits? [8+8]
 5. Interface an 8-bit DAC to 8255 with an address map of 0800H to 0803H. The DAC provides output in the range of +12V to -12V. Write the instruction sequence for the following.
 - (a) For generating a square wave with a peak to peak voltage of 8V and the frequency will be selected from memory location 'FREQ'.
 - (b) For generating a triangular wave with a maximum voltage of +6V and a minimum of -4V. [8+8]

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6. A logic network is having input variables A,B,C,D. The output variables are given below.

$$W = \overline{A}.\overline{BC} + BCD + A\overline{D}$$

$$X = BD + AC + AB + AD$$

$$Y = \overline{A}.\overline{B} + \overline{A}.\overline{C} + D.\overline{B}$$

$$Z = ABC + ACD + \overline{A}.\overline{BC} + D.\overline{B}$$

The array INPUT_1 contains 10 different combinations of input variables. Write an instruction sequence that determine the outputs for each combination of INPUT_1 array and store the output variables in the string OUTPUT_1. [16]

7. (a) Draw and explain the pin out diagram of 8086.
 (b) Explain the various operations performed by Bus Interfacing unit in 8086. [10+6]
8. (a) Write a program to find the Parity of 48 bit Number.
 (b) Write a program to solve the following expression. $2A^2 + 4AB + B^2C$ [8+8]

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Set No. 4

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MICROPROCESSORS

Mechatronics

Time: 3 hours

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Answer any FIVE Questions
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1. (a) Write a program to find the Parity of 48 bit Number.
(b) Write a program to solve the following expression. $2A^2 + 4AB + B^2C$ [8+8]
2. (a) Explain the Flag register of 8085 Microprocessor.
(b) Explain the following pins of 8085 Microprocessor.
 - i. RST 5.5
 - ii. RST 6.5
 - iii. READY
 - iv. \overline{INTA}
 - v. X_1, X_2 [6+10]
3. Interface an 8-bit DAC to 8255 with an address map of 0800H to 0803H. The DAC provides output in the range of +12V to -12V. Write the instruction sequence for the following.
 - (a) For generating a square wave with a peak to peak voltage of 8V and the frequency will be selected from memory location 'FREQ'.
 - (b) For generating a triangular wave with a maximum voltage of +6V and a minimum of -4V. [8+8]
4. (a) Draw the command register and mode register format of 8237 and explain each bit?
(b) 8251 is interfaced to 8086 processor at address 080H. Show the hardware design? Initialize it in asynchronous mode with even parity, 6-data bits, baud rate factor 1, one start bit and one and half stop bits? [8+8]
5. A logic network is having input variables A,B,C,D. The output variables are given below.

$$W = \overline{A}.\overline{BC} + BCD + A\overline{D}$$

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$$Y = \overline{A}.\overline{B} + \overline{A}.\overline{C} + D.\overline{B}$$

$$Z = ABC + ACD + \overline{A}.\overline{BC} + D.\overline{B}$$

The array INPUT_1 contains 10 different combinations of input variables. Write an instruction sequence that determine the outputs for each combination of INPUT_1 array and store the output variables in the string OUTPUT_1. [16]

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Set No. 4

6. (a) Define a macro for moving an arbitrary character string that ends with an EOT character from one string of bytes in memory to another?
- (b) Write a procedure COMPUTE for performing the computation $R \leftarrow X + Y - 3$. The word variables X, Y, R and COMPUTE are in the same code segment. The variables X and Y are defined in data segment D1_SEG. The data segment D2_SEG contains the variable R. Show the necessary definition along with the procedure? [8+8]
7. (a) Draw and explain the pin out diagram of 8086.
- (b) Explain the various operations performed by Bus Interfacing unit in 8086. [10+6]
8. (a) How many initialization command words are required for a single 8259 in an 8086 based system? Explain their format?
- (b) Under what conditions type 0 interrupt is initiated? List out the instructions that may cause type 0 interrupt? [8+8]

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Set No. 1

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MICROPROCESSORS

Mechatronics

Time: 3 hours

Max Marks: 80

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- Draw and explain the pin out diagram of 8086.
 - Explain the various operations performed by Bus Interfacing unit in 8086. [10+6]
- Interface an 8-bit DAC to 8255 with an address map of 0800H to 0803H. The DAC provides output in the range of +12V to -12V. Write the instruction sequence for the following.
 - For generating a square wave with a peak to peak voltage of 8V and the frequency will be selected from memory location 'FREQ'.
 - For generating a triangular wave with a maximum voltage of +6V and a minimum of -4V. [8+8]
- Explain the Flag register of 8085 Microprocessor.
 - Explain the following pins of 8085 Microprocessor.
 - RST 5.5
 - RST 6.5
 - READY
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 - X_1, X_2
- Write a program to find the Parity of 48 bit Number.
 - Write a program to solve the following expression. $2A^2 + 4AB + B^2C$ [8+8]
- A logic network is having input variables A,B,C,D. The output variables are given below.

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- How many initialization command words are required for a single 8259 in an 8086 based system? Explain their format?

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Set No. 1

- (b) Under what conditions type 0 interrupt is initiated? List out the instructions that may cause type 0 interrupt? [8+8]
7. (a) Define a macro for moving an arbitrary character string that ends with an EOT character from one string of bytes in memory to another?
- (b) Write a procedure COMPUTE for performing the computation $R \leftarrow X + Y - 3$. The word variables X, Y, R and COMPUTE are in the same code segment. The variables X and Y are defined in data segment D1_SEG. The data segment D2_SEG contains the variable R. Show the necessary definition along with the procedure? [8+8]
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Set No. 3

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MICROPROCESSORS

Mechatronics

Time: 3 hours

Max Marks: 80

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All Questions carry equal marks

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[6+10]
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