

**TE106 / MICRO1 - Microprocessors**

P. Pages : 2

Time : Three Hours



**GUG/W/24/13869**

Max. Marks : 80

- Notes :
1. All questions carry marks as indicated.
  2. Due credit will be given to neatness and adequate dimensions.
  3. Assume suitable data wherever necessary.
  4. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Why the bus AD<sub>0</sub> to AD<sub>15</sub> is multiplexed? Explain the need to demultiplex the bus AD<sub>0</sub> to AD<sub>15</sub>. How it is demultiplexed using IC 74373. **8**

b) Enumerate the Flag register of UP 8085? Show the status of different flags after microprocessor performs addition of two data CBH and E9H. **8**

**OR**

2. a) Draw the timing diagram for the instruction OUT 40 H. **8**

b) Explain the function of following pins of UP 8085 **8**  
i) HLDA ii) Trap  
iii) Ready iv) X<sub>1</sub> & X<sub>2</sub>

3. a) Explain the following instructions of UP 8085. **8**  
i) MOV A, M ii) XTHL  
iii) SBB M iv) PCHL

b) What is subroutine? Explain the unconditional CALL and RET instruction related to subroutine. **8**

**OR**

4. a) Explain the concept of stack memory in UP 8085 using PUSH and POP instruction with example. **8**

b) Write an ALP for 8085 to find occurrence of zero in the lower nibble of number stored in array. The length of the array is at memory location 414F H. The array starts from memory location 4150H. Store the result at 4140H. **8**

5. a) Compare absolute decoding and line decoding. **4**

b) Interface 16Kx8 EPROM and 8Kx8 RAM to UP 8085. The available memory is 4Kx8 EPROM and 4Kx8 RAM. The EPROM address should start from memory location 0000H. Draw the complete interfacing diagram. **12**

**OR**

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|-----------|---|-----------|
| <b>6.</b> | a) Explain the RIM and SIM instruction used in interrupt.   | <b>6</b>  |
|           | b) Explain the HW and SW interrupt structure of 8085UP with vector location and priorities.   | <b>10</b> |
| <b>7.</b> | a) Interface 8-bit DAC 0800 with UP 8085 using IC 8255. Write an ALP to generate continuous ramp waveform. The DAC is calibrated for 0V to 10V range. The 8255 address starts from 80H. | <b>8</b>  |
|           | b) Interface 7-segment display to up 8085 using IC 8255. Write control word format of IC 8255 to initialize the 7-segment display.  | <b>8</b>  |

**OR**

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|-----------|--|----------|
| <b>8.</b> | a) Explain the CWR format of IC 8255 in BSR mode. Write subroutine for UP 8085 to set and reset PC4 continuously. Assume delay routine of 1 msec is available.   | <b>8</b> |
|           | b) Draw and Explain power factor measurement of AC signal using UP 8085.   | <b>8</b> |
| <b>9.</b> | a) Describe in detail Counter latch command and Read back command of IC 8254.  | <b>8</b> |
|           | b) Write the instruction to generate a 100 KHz square-wave at OUT0 and a 200 KHz continuous pulse at OUT1 of 8254. Consider a clock of 2 MHz at clk0 and clk1. Again address pins A0 and A1 of 8254 are directly connected to A0 and A1 of 8085 and A7 of 8085 is connected to CS of 8254 through an inverter. | <b>8</b> |

**OR**

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|------------|--|----------|
| <b>10.</b> | a) Explain the IC 8254 CWR format and set up the 8254 as a square wave generator with 1 ms period if the input frequency to the 8254 is 1 MHz. | <b>8</b> |
|            | b) Explain the CWR format and status format of IC 8254.  | <b>8</b> |

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