B.E. Information Technology Fifth Semester

IT501 - Microprocessors and Microcontroller

P. Pages : 2 **GUG/W/18/1636**

Time : Three Hours * 1 2 8 5 * Max. Marks : 80

Notes : 1. Same Answer book must be used for all question.
2. All questions carry marks as indicated.
3. Due credit will be given to neatness and adequate dimensions.
4. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) What is tristate logic? Why it is needed in a microprocessor system? **8**

b) Explain concept of multiplexing in microprocessors? How demultiplexing of address / data lines in 8086 processor takes place? **8**

OR

2. a) List the bus cycles of 8086? Draw a timing diagram of IO write cycle. **8**

b) What are Assembler Directives? Explain the following directives with an example of each. **8**

i) ASSUME

ii) GLOBAL

iii) EQU

iv) PROC

v) PUBLIC and EXTERN

3. a) Write detailed note on software interrupt Also explain its address calculation for ISR for INT2 and INT3. **8**

b) Write difference between software and Hardware interrupt. **3**

c) What are maskable and non-maskable interrupts. What do you mean by user defined interrupt. **5**

OR

4. a) Design 32k word of memory of 8086 microprocessor system. Available memory chips are 16k x 8 RAM. Use suitable decoder for selecting memory IC. **10**

b) Explain the even and odd memory and its addressing. **6**

5. a) Write an assembly language program to generate triangular wave of frequency 500Hz using interfacing circuit given in fig. 5 (a) The 8086 system operates at 8MHz. amplitude of triangular wave should be +5V. **8**

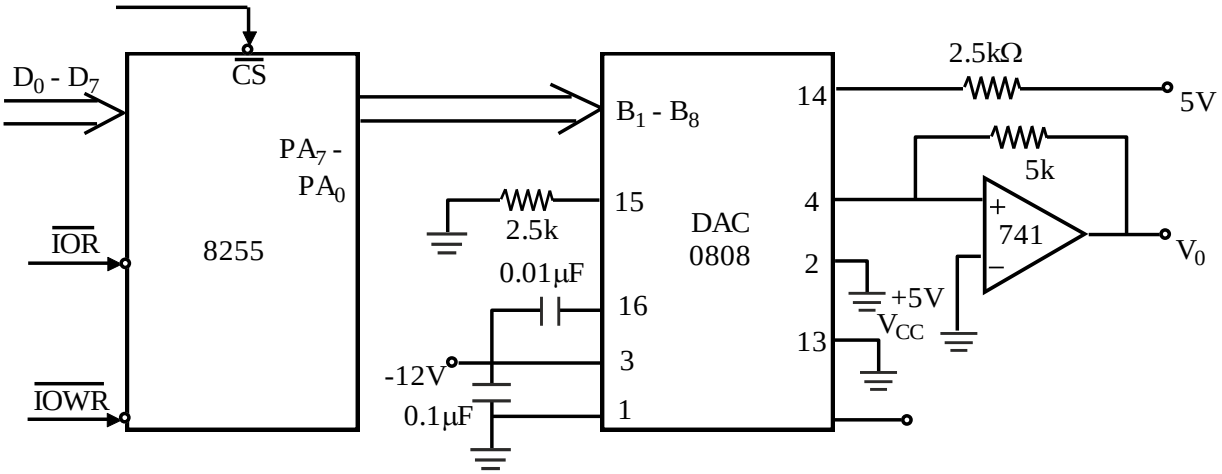

Fig. 5 (a) Interfacing DAC 0800 with 8086

b) What is a handshake Port? Explain the working of a handshake input port. **8**

OR

6. a) Discuss in detail about features, block diagram and function of each block of 8254 programmable interval timer. **8**

b) What are the different modes of operation of 8254 timer? Explain mode 2 & mode 4 with waveforms **8**

7. a) Explain the following with respect to 8259 PIC. **8**
i) Special fully nested mode. ii) Special mask mode.
iii) Initialization control word. iv) End of interrupt (EOI)

b) Draw and explain each block of internal architecture of 8259 PPI. **8**

OR

8. a) Explain the working of 8279 as a keyboard/display controller and differentiate 2key lockout from N key roll over mode of 8279. **8**

b) Draw and explain the following 8279 commands: **8**
i) Keyboard / display mode set command ii) Read FIFO / sensor RAM command

9. a) Explain the architecture of 8051 microcontroller with a neat diagram. **8**

b) Explain memory organization of 8051 microcontroller. **8**

c) Write difference between microprocessor and microcontroller. **3**

OR

10. a) Explain the interrupt structure of 8051 microcontroller. **8**

b) Describe TCON. SCON, SBOF & TMOD special function registers of 8051 microcontroller in detail. **8**

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