

Code No: R32044

**R10**

**Set No: 1**

III B.Tech. II Semester Supplementary Examinations, January -2014

**MICRO PROCESSORS AND MICRO CONTROLLERS**

(Comm to Electronics and Communication Engineering and Electronics and Computer Engineering and Biomedical Engineering and Electronics and Instrumentation Engineering)

**Time: 3 Hours**

**Max Marks: 75**

Answer any FIVE Questions  
All Questions carry equal marks

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1. (a) With a neat architectural diagram, explain the functioning of an 8086 microprocessor.  
(b) Discuss briefly about pre-fetch queue in 8086.
2. (a) Write an ALP in 8086 to move a block of N bytes of data from source to destination.  
(b) Discuss various branch instructions of 8086 microprocessor that are useful for relocation.
3. (a) Distinguish between mode set control word and BSR control word of 8255.  
(b) Briefly explain about memory interfacing with 8086 microprocessor.
4. (a) Describe the operation of 8279 with a neat block diagram.  
(b) Determine the seven segment codes you would have to send to the 8279 in SDK-86 to display the letters 8086.
5. (a) Discuss briefly about memory addressing in real mode of 80386.  
(b) What are the salient features of 80836 microprocessor?
6. (a) Explain the difference between a microprocessor and microcontroller.  
(b) Explain the interrupt structure of 8051.
7. (a) State the different mechanisms to reset PIC16C6X and PIC16F87X.  
(b) Explain the clocking scheme.
8. (a) Explain about Semaphore/Swap instructions with an example.  
(b) Discuss in brief five versions of ARM processor architecture.

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1. (a) Describe in detail about the register organization of 8086 microprocessor.  
(b) With a neat architectural diagram, explain the functioning of an 8086 microprocessor.
2. (a) Write an ALP in 8086 to find maximum number in the array of 10 numbers.  
(b) Discuss various branch instructions of 8086 microprocessor that are useful for relocation.
3. (a) Distinguish between mode set control word and BSR control word of 8255.  
(b) Briefly explain about memory interfacing with 8086 microprocessor.
4. (a) Write a short notes on 8251 USART .  
(b) Describe the important pins of 8237A.
5. (a) List the important features of 80387.  
(b) Draw the interfacing diagram between 80386 and 80387 and explain the communication between them.
6. (a) Explain the internal and external program memory as well as data memory of 8051 with the diagram showing their capacities.  
(b) Explain the differences between a microprocessor and microcontroller.
7. (a) What is Watch Dog Timer and explain it.  
(b) Explain the two stage pipelining with the help of example.
8. (a) With an example explain the Branch and Branch with link instructions.  
(b) List out the Coprocessor instructions and their syntax .

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1. (a) Compare the flag registers of 8086 and 8085.  
(b) Write in detail about the addressing modes of 8086.
2. (a) What are the loop instructions in 8086? Explain the use of DF flag in the execution of string instructions.  
(b) Write an ALP in 8086 to add 5bytes of data in an array by making use of procedure.
3. (a) Why do we need wait state and explain how wait states are generated.  
(b) What is the function of BS and AACK/XACK pins of 82C08(DRAM controller).
4. (a) Describe the important pins of 8237.  
(b) Draw and explain the architecture of 8237A.
5. (a) Give the formats for control and status registers of 80387 and explain each bit.  
(b) Briefly explain about the concept of paging in 80386 processor.
6. (a) Enlist salient features of 8051 family of microcontrollers.  
(b) Draw and discuss the formats and bit definitions of TCOM SFR in 8085 microcontroller.
7. Write an notes on:  
(i) I/O ports PIC16C6X and PIC16F87X .  
(ii) PSP in PIC16C6X and PIC16F87X .
8. (a) Compare ARM design and RISC design.  
(b) Explain in detail about ARM Core Dataflow Model.

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1. (a) Give the 16-bit flag register format of 8086 and explain about each flag in detail.  
(b) With a neat architectural diagram, explain the functioning of an 8086 microprocessor.
2. (a) What are the loop instructions in 8086? Explain the use of DF flag in the execution of string instructions  
(b) Write an ALP in 8086 to add 5 bytes of data in an array by making use of procedure.
3. Interface a 12-bit DAC to 8255 with an address map of 0C00H to 0C03H. The DAC provides output in the range of 5V to -5V. Write the instructions sequence.
  - (a) For generating a square wave with a peak to peak voltage of 4V and the frequency will be selected from memory location 'F'.
  - (b) For generating a triangular wave with a maximum voltage of 3V and minimum voltage of 2V.
4. (a) Draw the pin diagram of 8259 and describe its important pins.  
(b) Discuss the following modes of DMA transfer
  - (i) Signal transfer
  - (ii) Block transfer
5. (a) With a neat sketch, explain the addressing in protective mode of 80386.  
(b) Write a brief note on 80387.
6. An 8085 based system requires external memory of four 4kbytes of SRAM each and two chips of EPROM of size 2kbytes. The EPROM starts at address 2000H. SRAM address map follows EPROM map. Give the complete memory interface.
7. Write short notes on:
  - (i) Data EEPROM and
  - (ii) Flash Program Memory in PIC16F87X.
8. (a) State the advantages of ARM processor.  
(b) Discuss in brief five versions of ARM processor architecture.

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