(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 3040 Roll No.

B.Tech.

SIXTH SEMESTER EXAMINATION, 2004-2005

MICROPROCESSOR

Time : 3 Hours *Total Marks : 100*

Note : *(i) Attempt **ALL** questions.*

(ii) All questions carry equal marks.

1. Attempt ***any four*** parts of the following : **(5x4=20)**

(a) Describe the main advantages of a multi programming system over uniprogramming system.

(b) Draw the bus cycle for an 8086 IOW.

(c) Explain the conditions under which the IPQ in 8086 will be flushed.

(d) Explain why segmentation in 8086 makes multitasking easier.

(e) Explain why the throughput of an 8086 based system increases due to asynchronous behavior of EU and BIU.

(f) At what point in an 8086 bus cycle the READY line is checked and its response in return.

2. Attempt *any four* parts of the following : **(5x4=20)**

(a) Name the addressing mode for following 8086 instruction.

(i) DEC WORD DTR 4243 [BP] [SI]

(ii) CALL BX

(iii) MOV [BX], AX

(iv) ADD AX, BX

(v) SUB 4243 [BP] [SI], SI.

(b) Find the errors in following 8086 instructions and correct them.

(i) MOV CS, 4243

(ii) SHR AX, ϕ6

(iii) IN AL, 4243

(iv) LOOP : MOV AX.BX

(v) CALL 4243 [BX] [SI]

(c) Write an 8086 ALP to convert a 16 bit binary number passed in AX to equivalent packed BCD number.

(d) Write an 8086 ALP to call a FAR PROC with 2 word parameters passed using pointers.

(e) Explain the following assembler directives.

(i) EXTRN

(ii) PUBLIC

(iii) EVEN

(iv) STACK

(v) DT

(f) Explain the differences between Recursive and Reentrant PROC.

3. Attempt *any two* parts of the following : **(10x2=20)**

(a) With a timing diagram, explain the activities on HOLD and HLDA pins of 8086.

(b) Draw one bit internal structure of 8286 and with a timing diagram, explain how $\overline{BHE}$ signal is latched.

(c) Explain how does the 8087 understands or informs that :

(i) it is working with 8088.

(ii) particular instruction is meant for 8087.

(iii) 8087 has finished the work assigned.

4. Attempt *any four* parts of the following : **(5x4=20)**

(a) Explain the difference between BURST, TRANSPARENT and CYCLE STEAL DMA.

(b) Explain with schematic, how an 8255 - A programmed in MD1 output can be connected to the data bus of a processor.

(c) In 8251-A, explain the function of SYNCDET/ BREAKDET pin under different programming conditions.

(d) Using 8259-A, explain how more than 64 interrupting devices can be connected with an 8086.

(e) With a neat schematic, explain how an 8253 can be used to implement a WATCH DOG timer.

(f) With a neat schematic, explain the working of a 4 bit FLASH ADC.

5. Attempt *any two* parts of the following : **(10x2=20)**

(a) Describe the procedure for interfacing DRAM in a system. Explain the function of DRAM controller in this interface.

(b) Draw the internal structure of a FAMOSFET and explain how an EPROM stores charge.

(c) Draw the internal structure (Block Diagram) of 8051 and explain.

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