

Roll No.

--	--	--	--	--	--	--	--	--	--

No. of Printed Pages—4

EC—603

**B. TECH.**

SIXTH SEMESTER EXAMINATION, 2002-2003

**MICROPROCESSORS**

Time : 3 Hours

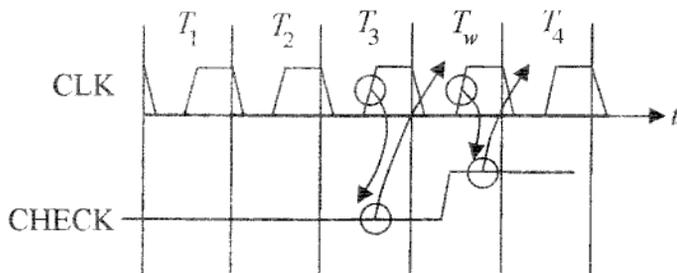
Total Marks : 100

Note : (1) Attempt ALL the questions.

(2) All questions carry equal marks.

1. Attempt any FOUR parts of the following :— (5×4=20)

- (a) Explain the concept of segmented memory. Explain the physical address formation in 8086.
- (b) Describe the function of the 8086 queue. How does the queue speed up processing ?
- (c) In 8086, mention the possible uses of all the internal registers.
- (d) Draw the block diagram of 8086 architecture and explain the multiprocessing features available.
- (e) Explain the meaning of the following timing diagram :—



(f) Write the pin details of a 256 KB EPROM and explain their function.

2. Attempt any FOUR part of the following :— (5×4=20)

(a) Write the addressing mode of the following 8086 instructions :—

- (i) DEC WORD PTR [BX]
- (ii) CALL FAR 4243 [BP] [SI]
- (iii) XCHG 4243 [BP] [SI], SI
- (iv) MOV AX, 4243
- (v) JMP (BX)

(b) Show bit wise PSW of 8086 and explain the function of each flag with an example.

(c) Explain the function of the following 8086 instructions :—

- (i) XLAT
- (ii) WAIT
- (iii) LOCK - prefix
- (iv) INC BYTE PTR 4243 [BP] [SI]
- (v) RET 12 D

(d) Explain with an example, the function of following assembler directive :—

- (i) DT
- (ii) ORIGIN
- (iii) PUBLIC
- (iv) GROUP
- (v) EXTRN

(e) What is the parameter passing ?

Write a 8086 program to find out the number of even and odd numbers from a given series of 16-bit hexadecimal numbers.

(f) What is the recursive procedure ?

Write a 8086 program to move a string of data words from offset 2000 H to offset 3000 H, the length of the string is  $2C3E_H$ .

3. Attempt any TWO parts of the following :— (10×2=20)

(a) Draw the block schematic of READY portion of 8284 - A and explain the two modes of READY synchronization in terms of 8086 data set-up and data hold time.

(b) Draw the bus cycle for the following 8086 instruction :—

OUT [DX], AX

(c) In 8086 max. mode co-processor configuration, explain the function of the following :—

(i)  $\overline{\text{TEST}}$

(ii) S6

(iii)  $\overline{\text{RQ}} / \overline{\text{GT1}}$

(iv) Bidirectional  $\overline{\text{BHE}}$  in 8087

(v) ESC code

4. Attempt any TWO parts of the following :— (10×2=20)

(a) Show in time scale, the relation between different handshakes in conditional programmed output and suggest a circuit to generate them.

(b) What do you mean by the Cascade operation of 8237 ? Why is it required ?

- (c) It is required to connect 68 input devices to 8086 in interrupting mode.

Suggest a scheme with complete connection with emphasis towards working principle.

5. Attempt any TWO parts of the following :— (10×2=20)

- (a) It is required to interface the following with 8086 in max. mode :—

- (i)  $6264 \times 2$  (MONITOR)
- (ii)  $27256 \times 2$  (MONITOR)
- (iii)  $62128 \times 4$  (USER)
- (iv)  $2732 \times 2$  (USER)

Draw the memory map and generate the chip selects.

- (b) In reference to 80386, explain the following :—

- (i) Conforming code segment
- (ii) CALL gate
- (iii) Granularity bit
- (iv) GS and FS
- (v) Shadow registers
- (vi) LTD and IDT
- (vii) Physical and Virtual memory
- (viii) aliasing and overlapping
- (ix) page replacement policy
- (x) GDTR and LDTR

- (c) What is dedicated microcontroller ? Enlist the salient features of 8051 family of microcontrollers.