Printed Pages : 4                                    **EEE404**

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

**PAPER ID : 0210**   Roll No. ⸋⸋⸋⸋⸋⸋⸋⸋⸋⸋⸋

# B.Tech.

## (SEM. IV) THEORY EXAMINATION 2010-11

## MICROPROCESSORS

*Time : 3 Hours*                        *Total Marks : 100*

Note :– (1)   Attempt **ALL** questions.

(2)   All questions carry equal marks.

1.   Answer any **FOUR** parts of the following :—   4×5=20

(a)   What are the different generations of computers ? Explain in brief.

(b)   Draw and explain the general architecture of a microcomputer system.

(c)   Explain the following :—

(i)   Data Bus

(ii)  Address Bus

(iii) Control Bus

Also mention their significances and limitations.

(d)   Draw and explain the building blocks of a computer system with help of a neat diagram.

(e)   What are the different addressing modes used in 8085 microprocessors ? Also mention its utilities.

(f)   What are the interfacing devices of 8085 microprocessors ? Explain the machine cycle timing diagram of 8085 microprocessors.

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2. Answer any **TWO** parts of the following :—    **2×10=20**

(a) Explain the pinconfiguration of 8-bit microprocessor such as 8085 microprocessors. Also explain the following terms in regarding with 8085 microprocessors :—

   (i)   MACHINE CYCLES

   (ii)  INTERRUPT

   (iii) ALU

(b) Explain the following instructions of 8085 micro-procesors :—

   (i)    SHLD addr

   (ii)   XCHG

   (iii)  MOV M, r

   (iv)  MVI M, data

   (v)   DAD $r_p$

   (vi)  INR M

   (vii) ORA r

   (viii) CMPM

   (ix)  STC

   (x)   RET

(c) Explain the following addressing modes of 8085 microprocessors :—

   (i)    Register addressing mode

   (ii)   Direct addressing mode

   (iii)  Register indirect addressing mode

   (iv)  Immediate addressing mode

   (v)   Implicit addressing mode

Also give their suitable examples.

3. Answer any **TWO** parts of the following :— **2×10=20**

(a) What do you mean by "PIPELINING" ? How this concept is used in 8086 ? Also draw the functional block diagram of 8086 and explain the function of its each section. How much active memory is available as general purpose data storage memory in 8086 ?

(b) Explain the following addressing modes in 8086 :—

(i) DIRECT ADDRESSING Mode

(ii) Based indexed addressing mode

(iii) Relative based indexed addressing mode

(iv) Register Relative addressing mode

(v) Immediate addressing mode.

Explain in brief with help of a suitable examples.

(c) Explain the following instruction set format in 8086 microprocessor :—

(i) CBW

(ii) ROR AX, CL

(iii) SBB BX, CX

(iv) IMUL CX

(v) AND BX, [SI]

(vi) AAA

(vii) ADD AX, [SUM]

(viii) MOV [SI], BX

(ix) PUSH S

(x) POP D

4. Answer any **TWO** parts of the following :— **2×10=20**

(a) What do you understand by "DEBUGGING" and "TESTING" of a program ? Explain in details. Write

an assembly language program to divide a 16-bit number by an 8-bit number.

(b) What do you mean by "ASSEMBLY LANGUAGE PROGRAMMING" ? Explain with an example by writing a program to find out the 2's complement of a number.

(c) Explain the function of the following :—

(i) ASSEMBLER

(ii) COMPILER

Also write an ALP to add two 6-byte numbers whose bytes are stored at 2501 and 2601 onwards respectively. Store the result back at memory locations starting from 2501 and onwards.

5. Answer any **TWO** parts of the following :—   **2×10=20**

(a) Write short notes on the following :—

(i) 8259—Programmable Interrupt Controller.

(ii) 8255—Programmable Peripheral Interface.

(b) What are interfacing devices ? Why are they required ? What are I/O ports ? INTEL 8212—An 8-bit I/O port is an unprogrammable but multi-mode in nature. Explain in brief.

(e) Give the features and functional block diagram of the following chips in brief :—

(i) 8237-DMA controller.

(ii) 8253/8254-Programmable timer/counter.