



# VIT

Vellore Institute of Technology  
(Deemed to be University under section 3 of UGC Act, 1956)

## Continuous Assessment Test – I

Programme Name & Branch:

BTECH COMPUTER SCIENCE AND ENGINEERING

Course Name & Code: MICROPROCESSOR AND  
INTERFACING TECHNIQUES CSE 2006

COMMON TO ALL BATCHES

Slot: C1

Exam Duration: 1.30 Hr. Maximum Marks: 50

Part A.

Answer all questions

5 x 10 = 50 marks

- ✓ Discuss in detail the pipelined architecture of 8086 microprocessor supported with internal block diagram. Briefly explain the physical memory organization of 1Mbytes of memory and physical address formation 8086.
- ✓ Explain the functions of the signals of 8086 mentioned in the following Table 2.1. Also indicate their mode of operation in 8086.

✓HOLD /HLDA	✓RQ/GT <sub>0</sub> , RQ/GT <sub>1</sub>
✓WR	✓LOCK
✓M/IO	✓S <sub>2</sub> , S <sub>1</sub> , S <sub>0</sub>
✓DT/R	✓DEN
✓QS <sub>0</sub> QS <sub>1</sub>	✓ALE

Table 2.1



SCAN ME

- ✓ Describe the addressing modes of 8086 mentioned in the following Table 3.1. Briefly explain at least two example instructions for every addressing mode with effective address formation for memory operands.

✓Register Indirect	✓Indexed
✓Register Relative	✓Based Indexed
✓Relative based Indexed	

Table 3.1

- ✓ Explain the assembler directives of 8086 mentioned in the Table 4.1. Give examples for every assembler directive mentioned in the Table 4.1.

Assembler Directive
✓DB, DW & DT
✓EQU (equate)
✓OFFSET
✓ASSUME
✓LOCAL & GLOBAL

Table 4.1

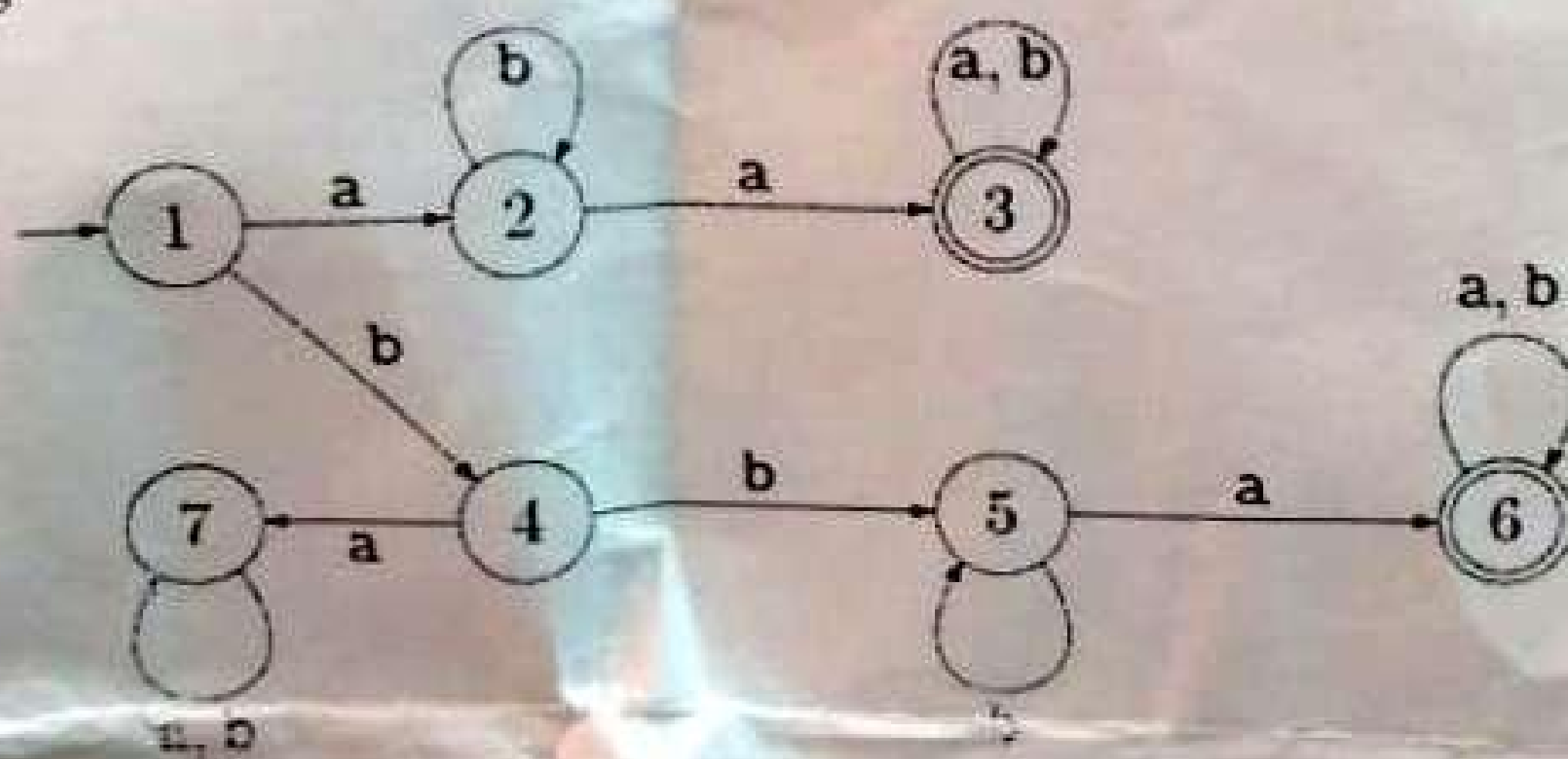
- ✓ (a) Write an assembly language program using the instruction set of 8086 to find the factorial of a given number initialized in data segment. (5)
- ✓ (b) Write an assembly language program using the instruction set of 8086 to generate Fibonacci series with number of terms initialized. (5)

Section B (3\*10=30)

5. For a NFA with  $\epsilon$  moves shown below determine the strings accepted by it. Construct an equivalent NFA without  $\epsilon$  moves.

States	Input symbols			
	0	1	2	$\epsilon$
$\rightarrow s_0$	$\{s_0\}$	-	-	$\{s_1, s_2\}$
$s_1$	-	$\{s_2\}$	-	$\{s_3\}$
$s_2$	-	$\{s_3\}$	-	-
$*s_3$	-	-	$\{s_3\}$	-

6. Construct minimized DFA for the following transition diagram using Equivalence Partitioning.



7. Design a NFA for the language:  $L = (ab)^* (ba)^* \cup aa^*$ . Convert this into equivalent DFA.