# CBCS SCHEME

113	USN			17CS44
15/	1 1	San Contraction	Fourth Semester B.E. Degree Examination, Jan./Feb.2021	
2	STATE OF THE PARTY	W.		
12	Control (12)		Microprocessor & Microcontroller	
101	C	MR		
11 x	Ballin	ne	3 hrs. Max. M	arks: 100
	1000			
k pages. will be treated as malpractice.		N	ote: Answer any FIVE full questions, choosing ONE full question from each mo	dule.
lprae				
: ma	· v	7	Module-1	
se ps	1,	a. L	With a neat diagram, explain the working of a 8086 microprocessor.	(10 Marks)
reate		b.	Explain the following 5 addressing modes of 8086 microprocessor:  (i) Register addressing mode.	
ses.	. "		(ii) Direct addressing mode.	
pag will			(iii) Register indirect addressing mode.	
olank 50, v			(iv) Base relative addressing mode.	
ng b 8 =			(v) Based indexed addressing mode.	
aining 42+8			with example for each.	(10 Marks)
ren eg,			A D	
the itten	2		OR Write an assembly language program to add 5 numbers present in the datasegmen	. <del>t</del>
compulsorily draw diagonal cross lines on the remaining blank pages $\theta$ , appeal to evaluator and /or equations written eg, $42+8=50$ , will be	2	a.	write all assembly language program to add 3 humbers present in the datasegmen	(06 Marks)
line		b.	Explain the following 4 assembler directives of 8086:	(
ross			(i) dup (ii) DD (iii) EQU (iv) ORG	
nal c			with syntax and examples.	(08 Marks)
and		c.	Explain all bits of a 8086 flag register.	(06 Marks)
w di ator			Module-2	
' dra valu	3	a.	Explain the interrupt mechanism in 8086 microprocessor.	(08 Marks)
oril) to e		b.	Explain use of these instructions with syntax (i) DAA (ii) MUL (iii) ROR	(iv) DIV.
puls peal				(08 Marks)
com		c.	Explain the NMI interrupt.	(04 Marks)
			OR_	
On completing your answers, or Any revealing of identification	4	a.	Write an ALP to read a string of maximum length of 50 bytes and clear the	screen and
our a		. A	display the read string at location 12H, 28H on the monitor.	(10 Marks)
g yo		ь.	Explain the following instructions with its syntax:	
letin aling		7423	(i) CMP (ii) DAS (iii) CALL (iv) XCHG (v) SAR	(10 Marks)
omp				
On c	~	_	Module-3	of vois
	5	a.	Interface 4, 32 K RAM to 8086 microprocessor. You may choose the address rate over Show the memory man	(10 Marks)
ite :		b.	own. Show the memory map.  Explain the following string instructions:	(10 Maiks)
Ž Z		٥.	1	MOVSB
ortan			(v) STOSB	(10 Marks)
Important Note: 1.				

b. Explain the following string instructions:
(i) CMPSB
(ii) SCASB
(v) STOSB

1 of 2

#### OR

- 6 a. Interface 8086 with 8255 chip such that Port A is output port and Port B is input port. Let the addresses be 1100h, 1101h, 1102h, 1103h for Port A, Port B, Port C and control register respectively. Write a program to read from Port B and write it to Port A. (10 Marks)
  - b. Explain the following instructions:
    - (i) IDIV
- (ii) IMVL
- (iii) CBW
- (iv) XLAT

(10 Marks)

(08 Marks)

(06 Marks)

(06 Marks)

### Module-4

- 7 a. Explain RISC design philosophy.
  - b. Explain the instruction set for embedded systems.
  - c. Explain the embedded system hardware.

OR

- 8 a. Explain the data flow model of a typical ARM core.
  - b. Explain the registers in a ARM microcontroller.
  - c. What is CPSR? Explain.

COT TECHNOLOGY

(08 Marks)

(08 Marks)

(04 Marks)

## Module-5

- 9 a. Explain the role of barrel shifter in ARM processors.
  - b. Explain the following instructions:
    - (i) RSC
- (ii) SBC
- (iii) EOR
- (iv) AND

(06 Marks)

c. Explain the MLA and SMLAL instructions with example.

(08 Marks) (06 Marks)

## OR

- 10 a. Write a program to copy a block of memory to another area in the memory.
  - b. Explain the following instruction with syntax:
    - (i) STMED
- (ii) SWP
- (iii) SWI
- (iv) CMP
- (10 Marks)

(10 Marks)

