

CBGS SCHEME

USN

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

15CS44



Fourth Semester B.E. Degree Examination, July/August 2021 Microprocessors and Microcontrollers

Max. Marks: 80

Note: Answer any FIVE full questions.

- 1 a. With neat block diagram, explain the architecture of 8086 Microprocessor. (08 Marks)
b. What are Addressing Modes? Explain any two types with examples. (04 Marks)
c. Discuss the Flag register format for 8086. (04 Marks)
- 2 a. Explain with block diagram the three steps to Create Executable Assembly language program. (06 Marks)
b. Develop an Assembly language program to calculate the sum of 5 bytes of data. (05 Marks)
c. Discuss Control Transfer Instructions of 8086 Microprocessor with examples. (05 Marks)
- 3 a. Explain ADD, ADC, INC, SUB, SBB, DEC and CMP Instruction with examples. (08 Marks)
b. Discuss MUL and DIV Instructions with examples for 8086. (04 Marks)
c. What is the difference between TEST and AND Instructions? Show with examples. (04 Marks)
- 4 a. Write a program for 8086 that (i) Clears-Screen and (ii) Sets the cursor at the centre of screen. (05 Marks)
b. Explain the Interrupt Vector table of 8086 Microprocessor. (06 Marks)
c. Discuss the types of 8086 Microprocessor-Interrupts. (05 Marks)
- 5 a. Explain the sign extension of 8 bit and 16 bit operands [CBW and CWD] in 8086 Microprocessor with examples. (06 Marks)
b. Show how the computer would represent byte operand - 36H and -128. (05 Marks)
c. Explain the String Instructions with examples (MOVS, LODS, STOS, CMPS and SCAS) (05 Marks)
- 6 a. Explain 8255 and its Control Word format with diagrams. (08 Marks)
b. Explain 8086 Input / Output (IN and OUT) Instructions with examples. (04 Marks)
c. Draw the logic design of an output port with an I/O Address of 31FH using 74373. (04 Marks)
- 7 a. With neat block diagram, explain the ARM based Embedded device Microcontroller. (06 Marks)
b. Explain Process Modes of CPSR with respect to ARM Processors. (06 Marks)
c. Write the comparison between Microprocessor and Microcontrollers. (04 Marks)
- 8 a. Explain the pipe line mechanism in ARM processors. (08 Marks)
b. Explain with neat block diagrams the two forms cache and TCM.
(i) Von Neumann Architecture with cache
(ii) Harvard Architecture with TCM (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

15CS44

- 9 a. Explain the Barrier Shifter Operation in ARM processor with diagram. (06 Marks)
b. Discuss the Arithmetic Instructions with examples with respect to ARM processor. (05 Marks)
c. Explain the Comparison Instructions with examples with respect to ARM processor. (05 Marks)
- 10 a. Discuss the Load-Store Instructions with examples with respect to :
(i) Single Register Transfer (08 Marks)
(ii) Multiple Register Transfer of ARM processor. (04 Marks)
b. Explain briefly co-processor instructions of ARM processor. (04 Marks)
c. Write a short note on SWAP Instructions with respect to ARM processor. (04 Marks)

* * * * *

CMRIT LIBRARY
BANGALORE - 560 037