Question Paper

Exam Date & Time: 07-May-2018 (09:30 AM - 12:30 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

INTERNATIONAL CENTRE FOR APPLIED SCIENCES
END SEMESTER THEORY EXAMINATION - APRIL 2018
III SEMESTER B. S. (ENGG)
Date:07.05.2018
Time: 9.30 A. M. TO 12.30 P.M.
COMPUTER ORGANIZATION AND ASSEMBLY LANGUAGE PROGRAMING [CS 232]

Marks: 100 **Duration: 180 mins.**

Answer 5 out of 8 questions.

Missing data, if any, may be suitably assumed

1) A) List the registers present in the Bus Interface Unit and the Execution Unit of the 8086 microprocessor and explain the same. (12)

B) Draw a neat block diagram of M68HC11 CPU and explain the data handling and instruction handling units. (8)

2) A) Write the 8086 instruction which will perform the indicated operation and explain the same. (12)

i) Multiply AL times BL
ii) Rotate the most significant bit of AL into the least significant bit position
iii) Mask the lower 4 bits of BL
iv) Increment the contents of CX by 1
v) Subtract 24H from the contents of AX register
vi) Set the higher 4 bits of AL register

B) Discuss the operation performed by the following M68HC11 instructions with an example for each. (8)

i) BRSET
ii) BCLR
iii) EORA
iv) CMPA

3) A) Write a complete program using 8086 instruction set and the assembler directives, to compute the sum and average of 10 bytes stored in an array in memory. Store the result in the memory. (12)

	B)	Explain the various sources of resets in M68HC11 microcontroller.	(8)
4)	A)	Write a complete program using 8086 instruction set and the assembler directives, to reverse a given string stored in memory and store the reversed string in memory.	(12)
	B)	Explain the following BUFFALO ROM commands with an example for each i) ASM ii) T iii) BF iv) MM[8]	(8)
5)	A)	Explain the following BIOS interrupt function requests: i) To set cursor shape ii) To read cursor position	(6)
	B)	Write a program using 8086 instruction set to convert one byte packed BCD number into ASCII format. Assume that the packed BCD number is stored in memory and store the result in memory.	(6)
	C)	Explain the following addressing modes of M68HC11 with an example for each. i) Direct ii) Inherent iii) Extended iv) Indexed	(8)
6)	A)	A Write a program using 8086 instruction set to accept a string from the keyboard into memory.	(6)
	B)	Write any three differences between macros and procedures	(6)
	C)	Explain the various PUL instructions of M68HC11	(8)
7)	A)	Explain the following string instructions of 8086 giving its syntax and an example for each. i) MOVS ii) CMPS iii) SCAS	(12)
	B)	Explain the following hardware modes of operation of M68HC11. i) Single Chip ii) Expanded Multiplexed iii) Special Bootstrap iv) Special Test	(8)
8)		What are addressing modes? Explain the following	(12)

A) addressing modes of 8086 microprocessor giving examples for each.

i) Direct
ii) Register
iii) Immediate
iv) Base IndexedRegister Relative

B) Explain the four general purpose interrupts of M68HC11 (8)

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