GANPAT UNIVERSITY
B. Tech. Semester IV (EC)
CBCS Regular Examination May/June 2013
2 EC 404: Microprocessor Architecture & Programming

TIME: 3 HOURS]   [TOTAL MARKS: 70

INSTRUCTIONS:
1. Attempt all questions.
2. Answers to the two sections must be written in separate answer books.
3. Figures to the right indicate full marks.
4. Assume suitable data, if necessary.

SECTION-I

Q:1 (A) Summarize the functions of various components of microprocessor based system.   3
(B) Draw the diagram showing hierarchical relationship between computer hardware and software.   3
(C) Differentiate the terms: Micro processor, Micro controller & Micro computer.   3
(D) Explain the difference between a compiler and an interpreter.   3

OR

Q:1 (A) The instruction code 32 H is stored in memory location C000H. Illustrate the data flow when the instruction code is fetched by MPU. (Diagram only)   3
(B) Draw the block diagram showing classification of different types of memory.   3
(C) What is tri-state device? Explain with the help of examples.   3
(D) Explain the memory address range of 1K (1024x8) memory with the help of diagram.   3

Q:2 (A) List out and explain the externally initiated signals of 8085.   3
(B) Draw the timing diagram of memory write machine cycle.   3
(C) Write a short note on 8085 Flag register.   3
(D) Assume that the accumulator contains data byte 82H and the instruction MOV C, A (4FH) is fetched. List the steps in decoding and executing the instruction.   3

OR

Q:2 (A) Differentiate memory mapped I/O and peripheral mapped I/O.   3
(B) Draw the timing diagram of OUT instruction.   3
(C) Explain absolute vs. partial decoding with the help of an example.   3
(D) Write a short note on 8155 peripheral IC.   3

Q:3 1. Design a seven-segment LED output port with a device address F5H, using a   11
74LS138 decoder, a 74LS20, a 74LS02 and a common anode seven segment LED.
2. Given WR and IO/M signals from the 8085, generate the IOW control signal.
3. Explain the binary codes required to display 0 to F Hex digits at the LED.
Write instructions to display digit 7 at the port.

SECTION-II

Q: 4	(A)	Give the classification of 8085 instruction.	6
	(B)	Six bytes of data are stored in memory location starting at C050H. Add the data bytes. Use register B to save any carries generated, while adding the data bytes. Store the sum at two consecutive memory location C070H and C071H.	4
	(C)	Exchange the content of BC pair and DE pair using PUSH and POP instruction.	2

OR

Q: 4	(A)	Give the classification of 8085 instruction according to its instruction format.	6
	(B)	A set of current reading is stored in memory locations starting at C050H. The end of the data string is indicated by the data byte 00H. Add the set of readings. The answer may be larger than FFH. Store the answer in the memory location C070H and C071H. Data(H):32,52,F2,A5,00	4
	(C)	Explain Rotate instruction with suitable example.	2

Q: 5	(A)	Calculate loop2 time delay for following program if clock frequency is 2MHz.	4

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        MVI B,38H
LOOP2:MVI C,FFH
LOOP1:DCR C
        JNZ : LOOP1
        DCR B
        JNZ :LOOP2
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	(B)	A set of three reading is stored in memory starting at C250H. Sort the reading in ascending order. Data(H):87,56,42	6
	(C)	Explain CALL and RET instruction with suitable example.	2

OR

Q: 5	(A)	Write ALP for 2-Digit Binary to BCD conversion.	6
	(B)	Explain RIM and SIM instruction.	6

Q: 6	(A)	Explain 8085 Vectored interrupts	5
	(B)	Explain the following 8085 instruction with suitable example:	6

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1.DAD
2.PCHL
3.XTHL
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