Student exam no _____

GANPAT UNIVERSITY

B.Tech Sem. Vth Biomedical & Instrumentation

Regular Exam November / December-2012

2BM 503: Microprocessor Architecture and Interfacing

Time: 3 Hours **Total Marks-70**

Instructions:

1. Answer to the questions must be written in separate answer books.
2. Figure to the right indicate marks.
3. Conventional terms / notations are used.
4. All the questions are compulsory.

SECTION-I

Q.1 12

A. Study timer mode 01 of 8155 and observe the squarer wave at timer out pin of 8155.Take the count 315AH

B. Explain operation modes of 8255 in detail.

OR

Q.1 12

A. Configure 8253 in mode 3,counter 0 and counter 1 is selected.Load 16bit count in both counters and observe output on CRO.

B. Draw and explain 8085 microprocessor architecture.

Q.2 11

A. Explain the following instructions with their operand,description and example

SIM
LDA
LHLD
PUSH
DAA
JMP
OUT
DCR
INX
SBB
CPI

OR

Q.2 11

A. Write an ALP to load one number into the B register and compare it with the contain of A register.If

A>B contain of C register=01H
A=B contain of C register=00H
A<B contain of C register=02H

B. Classify and explain interrupts.

Q.3 12

A. Write an ALP to find out the square of the given number.Store the result in register B.

B. Write an ALP to load one 8 bit number in D register increment it until AC flag is set(Check the AC-auxillary carry)

SECTION II

Q.4

A. Check whether the following statements are true or false? 12

a.If 8085 microprocessor is interrupted while executing a 3 byte instruction (assuming the interrupt is enabled).the processor will acknowledge the interrupt request immediately,even before the completion of the instruction.

b.When the 8085 system is reset .all the interrupts including the TRAP are disabled.

c.When the 8085 microprocessor acknowledges an interrupt ,it disables the interrupt

d.It is necessary to implement the TRAP interrupt ,but external hardware and the SIM instruction are unnecessary.

e.If instruction RST 4 is written in a program ,the program will jump to location 0020Hwithout any external hardware.

B. i) List the internal components generally found in a programmable device.
ii) What is stack?Explain stack in detail.
iii) Draw and explain the control word for 8255

OR

Q.4

A. Write a program to count continuously in hexadecimal from FFH to 00H in a system with a 0.5usec clock period. Uses register C to set up a one millisecond delay between each count 12

B. Configure 8253 counter 0 in rate generator mode. Give output of counter 0 to counter 1,which should work in square wave mode.Observe output on CRO.

Q.5

A. Write an ALP to generate 1 second delay. Write one separate subroutine for delay. 11

B. Write an ALP to find out 0's and 1's present in the 8AH number

OR

Q.5

A. List the operating modes of the 8255A Programmable Peripheral interface. 11

B. Write an ALP to find the largest and smallest number from given data storing from 2100H to 2110H and store the result in memory location 3100H and 3101H

Q.6

A. Write an ALP to separate odd and even numbers from the given string.Also calculate number of zeros in the given string. 12

B. Write an ALP to add two 16 bit numbers by using DAD instruction and without using DAD instruction.

END OF PAPER