Student Exam No._____

GANPAT UNIVERSITY

B.TECH SEM V (ELECTRICAL ENGINEERING)

REGULAR EXAMINATION NOV- DEC - 2014

2EE501: FUNDAMENTAL OF MICROPROCESSORS

Max Time: 3hrs. **Max Marks: 70**

Instructions:

1. All questions are compulsory.
2. Answers to two sections must be written in separate answer books.
3. Figures to the right indicate full marks.
4. Assume suitable data wherever necessary.

SECTION – I

Q:1 **(A)** Define instruction cycle. Also discuss instruction fetch and execute cycle with necessary timing diagram. **(07)**

(B) Explain following instructions. **(03)**

(i) DAA (ii) DAD B

(C) What is the purpose of ALE and HLDA pin in 8085 micro-processor? **(02)**

OR

Q:1 **(A)** Sketch the architectural block diagram of 8085 microprocessor. Also state the function of each block in brief. **(06)**

(B) Discuss different addressing modes available in 8085 microprocessor with example. **(04)**

(C) Point out Valid and Invalid instructions: Correct invalid ones **(02)**

(i) MVI AB (ii) ANI 0B h

(iii) LDA BD (iv) STA C000 h

Q:2 **(A)** Draw and explain the programming model of 8085 microprocessor. **(06)**

(B) Total 10 data are stored at memory location starting from 4051 h to 405A h. write a program to arrange all data in ascending order. **(05)**

OR

Q:2 **(A)** What is program format? Illustrate with example. **(04)**

(B) Define bus. Draw & explain bus structure of 8085 microprocessor. **(05)**

(C) Specify the content of accumulator and status of flags when following instructions are executed. **(02)**

MVI A, B7 h

ORA A

Q:3 **Attempt Any Three** **(12)**

(A) How address/data lines AD0-AD7 are demultiplexed? Explain

(B) Explain timing diagram of memory write cycle.

(C) Write a program to multiply two hex number which is stored at memory location 2050 h and 2051 h. store result in memory location 2052 h. (**Assume that** result of multiplication doesn't generate any carry)

(D) With suitable example, distinguish between

(i) higher & lower level languages

(ii) Call & Jump Instruction

SECTION – II

Q:4 (A) State and explain working of rotate instructions of 8085 with proper example. (06)

(B) What is PPI? Draw block diagram of 8255 and also state the functions of each block. (04)

(C) Enlist the modes of 8254 programmable interval timer. (02)

OR

Q:4 (A) Draw and explain the format of SIM and RIM instructions. (06)

(B) Give the control word of 8255 and explain mode 1 input operation in detail. (04)

(C) Write an ALP to find 2's compliment of a number stored in memory location A000. Store result in B000. (02)

Q:5 (A) Draw and explain the format of flag register for 8086 microprocessor. (06)

(B) (i) Define : T – states, Machine cycle (02)

(ii) Write a subroutine program to generate a delay of 1 sec, when crystal frequency of microprocessor is 3 Mhz. (03)

OR

Q:5 (A) Write a program to provide the given on/ off time to three signal light (Green, Yellow and Red) and two pedestrian sign (Walk & Don't Walk). The signal light and signs are turned on/ off by the data bits of output port as shown below. (05)

Lights	Data bits	On time
Green	D_0	20 Seconds
Yellow	D_2	5 Seconds
Red	D_4	35 Seconds
Walk	D_6	20 Seconds
Don't Walk	D_7	40 Seconds

The traffic and pedestrian flow are in same direction: the pedestrian should cross the road when green light is on

(B) Using diagram illustrate pin out of 8086 microprocessor. (06)

Q:6 **Attempt Any Two** (12)

(A) List out major section of 8279 display controller also explain any one section in detail with suitable diagram.

(B) What is stack and stack pointer? Explain the working and use of stack in subroutine program.

(C) Draw and explain logical block diagram of 8259 (PIC).

END OF PAPER