Total No. of Questions : 10] *[Total No. of Printed Pages : 4*

Roll No .....

CS-601 (GS)

B.E. VI Semester

Examination, May 2018

Grading System (GS)

Microprocessor and Interfacing

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) What is the main difference between the 8086 and 8088?
   b) Explain the following terms:
      i) Memory interfacing
      ii) Watchdog timer
      iii) Cache memory
      iv) Magnetic memory

2. a) Assemble the following program, starting at location 2000H

```
START: IN F2H     : Read input switches at port F2H
       CMA        : Set ON switches to logic 1
       ORA A      : Set Z flag if no switch is ON
       JZ START   : Go back and read input port if all
                    switches are off.
```


   b) Write a program to meet the following specification:
      i) Initialize the stack pointer register at XX99H.
      ii) Clear the memory location starting from XX90H to XX9FH.
      iii) Load register pairs B, D and H with data 0237H, 1242H and 4087H respectively.
      iv) Push the contents of the register pairs B, D and H on the stack.
      v) Execute the program and verify the memory location from XX90H to XX9FH.

3. a) Write logical steps to add the following two Hex numbers. Both the numbers should be saved for future use. Save the sum in the accumulator. Also translate the program into the 8085 assembly language.

      Numbers: A2H and 18H

   b) Read the following program and answer the following questions given below:

Line No.	Mnemonics
1	LZI SP, 0400H
2	LXI B, 2055H
3	LXI H, 22FFH
4	LXI D, 2090H
5	PUSH H
6	PUSH B
7	MOV A, L
↓	↓
20	POP H

      i) What is stored in the stack pointer register after the execution of line 1?

ii) What is the memory location of the stack where the first data byte will be stored?

iii) What stored in memory location 03FEH when line 5 (PUSH H) is executed.

iv) After the execution of line 6 (PUSH B), what is the address in the stack pointer register, and what is stored in stack memory location 03FDH.

v) Specify the content of register pair HL after the execution of line 20 (POP H).

4. a) Draw the block diagram of 8251 USART and explain function of each block.

   b) What is the main difference between UART and USART?

5. a) Write an 8086 program to convert BCD data to binary data.

   b) Specify the conditions to start the timer 8254. List the major components of 8259A interrupt controller and explain their functions.

6. a) Explain following for 8255

   i) Mode control word format

   ii) Bi set/reset control word format

   b) Write the initialization instructions of 8259A PIC, to meet the following specifications:

   i) Interrupt type 32

   ii) Edge Triggered, single and ICW4 needed, interval of 8

   iii) Mask IR1 and IR3 interrupts.

7. a) Draw the block diagram of 8086 and describe its internal architectures. What are the functions of the 8086 DT/$\overline{R}$ and DEN signals.

   b) Describe how the 8088 memory is configured. Why doesn't the 8088 need a $\overline{BHE}$ signal.

OR

8. a) Draw the block diagram programmable interrupt controller and explain its workings.

   b) Discuss the various priority modes of programmable interrupt controller (8259).

9. a) Draw the block diagram of internal architecture of 8051 microcontroller. Also explain its various features.

   b) What are the various addressing modes available in 8051? Explain with examples.

OR

10. a) Discuss the register set and flags of 8051 microcontroller.

    b) Draw the pin diagram of 8051 microcontroller and explain the function of each pin.

******