

Seat  
No.

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Bll1311

## Microprocessor - I (New) (1070)

P. Pages : 2

Time : Three Hours

Max. Marks : 100

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answersheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Attempt **any two** questions from each unit.
5. Assume suitable data whenever necessary.
6. Draw the neat & labelled diagram whenever necessary.
7. Figure to right indicates full marks.

### UNIT - I

1. a) Draw and explain internal architecture of 8086. 10  
b) For the following data  
CS=1000H, DS=2000H, SS=3000H, ES=4000H  
BP=0010H, BX=0020H, SP=0030H, SI=0040H, DI=0050H.  
Determine the memory addresses accessed by each of the following instructions.  
i) mov AL, BP ii) mov CX, [BX]  
iii) mov AL, [BP+SI] iv) mov CS : [BX], AL. 10  
c) Explain following instructions with suitable example. 10  
i) ADC ii) NEG iii) SHR  
iv) RCL v) XOR

### UNIT - II

2. a) Write and explain BIOS and DOS interrupts. 10  
b) Write an assembly language program for 8 bit BCD addition using Near procedure. 10

- c) Calculate the total delay time generated by the following instruction when they are executed. Figure in bracket indicates number of cycles required to execute that instruction. Assume 8086 is operated in 5 MHz clock frequency. **10**

```

Outer :  mov CX, OFFFHH  [4]
         mov DX, CX      [2]
         mov CX, OFFFHH  [4]
         Loop outer      [1715]
         HLT              [2]

```

### UNIT - III

3. a) Draw and explain the internal block diagram of programmable interrupt controller (PIC) 8259A. **10**
- b) Draw and explain bus cycle timing for four active bus cycle types for minimum mode. **10**
- c) Explain the minimum and maximum mode. Draw 8086 in maximum mode and explain it in detail. **10**

### UNIT - IV

4. a) Explain the address decoding techniques in detail. **10**
- b) Draw and explain architecture of 8237 DMA controller. **10**
- c) Design the 8086 based system with the following. **10**
- 16KX8 EPROM  
16KX8 RAM
- 8086 is in minimum mode. Draw the complete schematic of design indicating address selected, decoder table, decoder design and memory map of the system.

### UNIT - V

5. a) Write the short note on following. **10**
- i) Closely coupled configuration.  
ii) Loosely coupled configuration.
- b) Explain following instructions related to 8087 instruction set. **10**
- i) FINIT                      ii) FXCH                      iii) FDIVR  
iv) FYL2XP1                  v) FPTAN.
- c) Write an assembly language 8087 program to calculate area of triangle. **10**

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