Roll No.: .....

National Institute of Technology, Delhi

Name of the Examination: B.Tech.

Branch	**: EEE**	**Semester**	**: V**
Title of the Course	**: Microprocessors and Applications**	**Course Code**	**: EE 304**

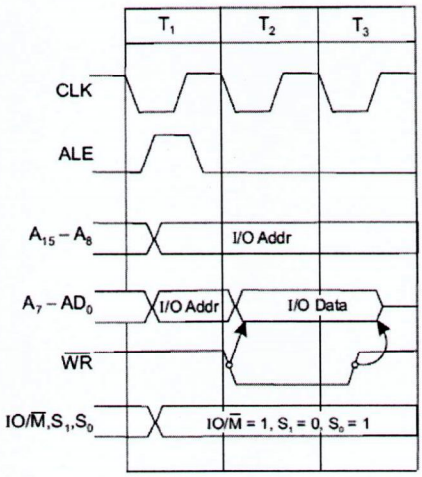
Time: 2 Hours **Maximum Marks: 30**

Note:

- **Answers should be CLEAR, TO THE POINT AND LEGIBLE.**
- **All parts of a single question must be answered together and in the same sequence as given in question paper. ELSE QUESTION SHALL NOT BE EVALUATED.**

Q.1. Answer the following questions. **[1 X 6]**

(a) The following figure is the timing diagram of a machine cycle of 8085. Identify the timing diagram



(b) The memory map of a 4K (4096) byte memory chip begins at location 2000H. Specify the address of the last location on the chip if it is connected to an 8085 microprocessor.

(c) At which location is Code segment of the Interrupt Service Subroutine is located if the main program in 8086 microprocessor is interrupted by INT 40.

(d) A processor has a clock period of 2MHz. Its instruction set is compatible with 8085 microprocessor. How much time will it take to execute the following set of instructions? The Jump instruction takes 10 T-states when the condition is satisfied and 7 T states when the loop is not executed and DCR instruction uses only Opcode fetch machine cycle.

```
        MVI C, FFH
LOOP    DCR C
        JNZ
```

(e) After the 8086 executes the following set of instructions what are the contents of AX

```
CLC
MOV AX, 9535H
RCL  AX, 1
INT
```

(f) After the 8086 executes the following instruction set what is expected at the memory location 0302H

```
MOV AX, 7642H
MOV DI, 0301H
STOSW
INT
```

Q.2. Discuss how does the 8086 microprocessor accesses data at the even address and odd addresses? **[6]**

Q.3. What are the different modes through which addresses can be accessed in 8086 microprocessors? **[6]**

OR

Discuss all the interrupts of 8086. Specify whether they are hardware/software interrupts, at which locations they are vectored, whether masked or Non-maskable etc. **[6]**

Q.4. Explain the memory segmentation scheme of used with 8086 microprocessor and what are the advantages which a memory segmentation scheme has as compared to one where there is no memory segmentation. **[6]**

Q.5. (a) Differentiate between 8085 microprocessors and 8086 microprocessors preferably in a tabular form in terms of its features. **[3]**

(b) Explain the flag structure of 8086 microprocessor **[3]**
