**DMI COLLEGE OF ENGINEERING**

**EC2304 – MICROPROCESSOR AND MICROCONTROLLER**

**Unit – I**

**PART A**

1. What is the function of the accumulator?
2. What is a flag?
3. Define machine cycle?
4. Why is the data bus bi-directional?
5. What is an Assembler?
6. Define microprocessors?
7. What is pipelined architecture?
8. Write the flags of 8086
9. Write down the control and status signals?
10. Define T-state?
11. What is interrupt?
12. What are different data transfer schemes?
13. What is DMA?
14. Define pipelining.
15. Define Victim cache?
16. Define trace cache?
17. What is the function of BIU and EU?
18. What are different register sets?
19. Describe HOLD and HLDA pins.
20. What is interfacing?

**PART B**

1. Explain the internal hardware architecture of 8086 microprocessor with pin diagram.
2. Explain memory addressing
3. Explain NMI and MI.
4. (i)Explain bus cycle for memory or I/O read for minimum mode.

(ii) Explain bus cycle for memory or I/O write for minimum mode.

1. Explain Memory Interfacing
2. (i)Write briefly about the Direct Memory Access.

(ii) Explain the external memory addressing in 8086.

1. (i)Discuss the interrupts types of 8086 microprocessor.

(ii) Discuss Memory mapped I/O and Interrupt Mapped I/O.

1. Draw and explain Bus cycles for Read and Write Operation for Maximum Mode.
2. Explain register indirect addressing mode and register relative addressing mode.
3. Give the description for the following pins. (i) AD15 – AD0. (ii)READY. (iii) INTR (iv) NMI. (v) reset, (vi) clock, (vii) QS1,QS0 (viii)A19/S6-A16/S3.

**Unit – II**

**PART A**

1. Give example of register addressing mode.
2. Define opcode and operand.
3. What are the different Addresing Modes?
4. Explain the few Assembler directives in 8086?
5. Explain the data transfer group and logical group in 8086 insturction?
6. Explain the relative addressing modes and string addressing modes in 8086?
7. Explain Arithmatic group 8086 insturction.
8. Explain the Index addressing modes and register addressing modes in 8086.
9. List any four program control instructions available in 8086?
10. What are the 8086 instructions used for BCD arithmetic?
11. Explain operand types?
12. What is the purpose of BX and CX register?
13. What is the purpose of source index and destination index?
14. What are assembler directives?
15. Explain OFFSET LABEL.
16. Explain PROC and ENDP.
17. Draw the format of instruction set?
18. Explain segment register to register operation.
19. Explain immediate data to accumulator operation.
20. Explain CBW and CWD.

**PART B**

1. Explain the assembler directives ASSUME, EQU,DW, and EVEN with suitable examples.
2. Explain the data transfer group of 8086 instructions.
3. Explain with diagram Base plus index register relative addressing mode and Base plus index register addressing mode.
4. Write an 8086 ALP to find the largest element in array elements
5. Write an 8086 ALP to sort the array of elements in ascending order
6. (i)Explain register indirect addressing mode.

(ii) Explain control transfer group with example

1. Explain string addressing mode.
2. Explain with example assemble directives give 8 examples.
3. Explain the logical group of 8086 instruction.
4. Explain arithmetic group with example.