# University of Mumbai

Time: 2hour 30 minutes Max. Marks: 80

==========

| Q1. | **Choose the correct option for following questions. All the Questions are compulsory and carry equal marks** |
|---|---|
| 1. | The number of software interrupts in 8086 microprocessor is |
| Option A: | 2 |
| Option B: | 255 |
| Option C: | 256 |
| Option D: | 5 |
| | |
| 2. | The number of Conditional Flags in the Flag Register of 8086 is ____ |
| Option A: | 3 |
| Option B: | 6 |
| Option C: | 9 |
| Option D: | 16 |
| | |
| 3. | Which of the following instructions performs Division by 2 ? |
| Option A: | SHR |
| Option B: | ROR |
| Option C: | SHL |
| Option D: | ROL |
| | |
| 4. | Which of these is used only in Maximum mode of 8086? |
| Option A: | 8284 Clock Generator |
| Option B: | 8286 Octal Bus TransReceiver |
| Option C: | 8282 Octal Latch |
| Option D: | 8288 Bus Controller |
| | |
| 5. | Which port of 8255 PPI is used in both I/O and BSR Modes? |
| Option A: | Port A |
| Option B: | Port C |
| Option C: | Port B |
| Option D: | Port B and Port C |
| | |
| 6. | MOV A, R4 is an example of__addressing mode. |
| Option A: | Immediate addressing mode |
| Option B: | Register addressing mode |
| Option C: | Indirect addressing mode |
| Option D: | Indexed addressing mode |
| | |
| 7. | On reset of 8051, value in stack pointer is___. |
| Option A: | 00H |
| Option B: | 30H |
| Option C: | 07H |
| Option D: | FFH |
| | |
| 8. | Timer of 8051 operates in___as 8 bit auto reload mode. |

| | |
|---|---|
| Option A: | Mode2 |
| Option B: | Mode1 |
| Option C: | Mode0 |
| Option D: | Mode3 |
| | |
| 9. | In SCON register, REN bit is used for_ |
| Option A: | Enable/disable the serial data reception |
| Option B: | Enable/disable the flag |
| Option C: | enable/disable the SBUF |
| Option D: | Enable/disable the interrupts |
| | |
| 10. | To use Timer 1 as a counter, the clock pulse is applied to pin_____. |
| Option A: | P3.4 |
| Option B: | P3.5 |
| Option C: | P3.0 |
| Option D: | P3.1 |

| **Q2.** | |
|---|---|
| A | **Solve any Two** **5 marks each** |
| i. | Explain the significance of Logical address and Physical address in 8086. |
| ii. | Explain the function of the bits in the I/O Control Word of 8255 PPI |
| iii. | Explain the significance of Queue in 8086 |
| B | **Solve any One** **10 marks each** |
| i. | What is Memory Segmentation? Explain the advantages of Memory Segmentation in 8086. |
| ii. | Using Interrupt Vector Table, explain the sequence of occurances when an interrupt occurs in 8086. |

| **Q3.** | |
|---|---|
| A | **Solve any Two** **5 marks each** |
| i. | Write a note on Addressing modes of 8051 |
| ii. | 8051 Discuss Power Saving Modes of 8051 |
| iii. | What are 'Assembler Directives'? Explain with the examples. |
| B | **Solve any One** **10 marks each** |
| i. | Interface 32KB RAM and 32KB ROM using 16KB RAM and 16 KB ROM devices respectively, with 8086. Memory mapping and Address decoding to be presented. |
| ii. | Explain the following w.r.t 8259 PIC<br>ICW1, OCW3, AEOI |

| Q4. | |
|---|---|
| A | **Solve any Two** **5 marks each** |
| i. | Write a note on 'Memory Organization' in 8051. |
| ii. | Draw and explain the IP SFR of 8051. |
| iii. | Explain the following instructions w.r.t 8051<br>MOVX, CJNE, SWAP, AJMP |
| B | **Solve any One** **10 marks each** |
| i. | Interface a 4 phase stepper motor with 8051, draw the logic interface and write an assembly language program to rotate the motor clock wise and anti-clock wise repeatedly for infinite time. Stepping patterns for the stepper motor to rotate clock wise are given as 05H,06H,0AH,09H |
| ii. | Interface DAC with 8051 |