

**Microprocessor & Microcontroller**

P. Pages : 2

Time : Three Hours



**NKT/KS/17/7324/7329**

Max. Marks : 80

- Notes :
1. All questions carry marks as indicated.
  2. Solve Question 1 OR Questions No. 2.
  3. Solve Question 3 OR Questions No. 4.
  4. Solve Question 5 OR Questions No. 6.
  5. Solve Question 7 OR Questions No. 8.
  6. Solve Question 9 OR Questions No. 10.
  7. Solve Question 11 OR Questions No. 12.
  8. Due credit will be given to neatness and adequate dimensions.
  9. Assume suitable data whenever necessary.

1. a) Draw and explain architecture of 8086. **8**
- b) Explain the following instructions of 8086. **6**
- i) XLAT
  - ii) REP
  - iii) MOVSB

**OR**

2. a) Interface 64KB RAM and 64 KB ROM with 8086 from suitable address in minimum mode. **8**
- b) Explain different addressing modes of 8086 with one example each. **6**
3. a) What is interrupt? Explain dedicated interrupts of 8086. **7**
- b) Explain BSR and parallel I/O mode of 8255 PPI in detail. **6**

**OR**

4. a) Explain different keyboard modes of 8279PKDC. **6**
- b) Interface 8x8 keyboard matrix and 8 units of 7 segment display with 8086 using 8279PKDC from address 80H. **7**
5. a) Draw and explain block diagram of 8254 PIT. **6**
- b) Interface 8254 PIT with 8086 and write a program to generate a square wave of 1 KHz **7**

**OR**

6. a) Draw and explain block diagram of 8259 PIC. 6  
 b) Interface three ICs of 8259 PIC with 8086 in such a way that one is master and other two are slaves connected at IR<sub>3</sub> and IR<sub>7</sub> of master. Write initialization routine for master. 7
7. a) Draw and explain interfacing of 8086 with 8087 NDP. 7  
 b) Explain maximum mode signals of 8086. 6
- OR**
8. a) Draw and explain block diagram of 8237 DMAC. 7  
 b) Explain different data types of 8087 NDP giving one example each. 6
9. a) Draw and explain architecture of 8051  $\mu$ C. 8  
 b) Explain multifunction port 0 and port 2 pins of 8051. 5
- OR**
- 10 a) Explain different addressing modes of 8051 with one example each. 5  
 b) Explain following pins of 8051. 5  
 i)  $\overline{\text{PSEN}}$   
 ii)  $\overline{\text{EA}} / \text{VPP}$   
 c) Explain memory organization of 8051. 3
11. a) Explain TMOD and TCON register of 8051. 4  
 b) Write a program using instructions of 8051 to transmit message "Microcontroller-51" serially at a baud rate of 9600Hz. 5  
 c) Explain interrupt structure of 8051. 5
- OR**
- 12 Write note on **any three**. 14  
 i) Interfacing of 4x4 keyboard matrix with 8051.  
 ii) Interfacing of ADC with 8051.  
 iii) Interfacing of DAC with 8051.  
 iv) Interfacing of stepper motor with 8051.

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