B.E. (Electronics Engineering / Elect. Telecommunication / Elect. Communication Engineering)
Fifth Semester (C.B.S.)

Microprocessor & Microcontroller

P. Pages : 2   NRT/KS/19/3409/3414

Time : Three Hours

0135

Max. Marks : 80

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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. Assume suitable data whenever necessary.

1. a) Draw and explain internal architecture of 8086 in detail.   7

    b) Explain the function of following pins of 8086.   6
        i)   ALE   ii) $\overline{BHE}$
        iii) MN / $\overline{MX}$ iv)   NMI
        v)   M / $\overline{IO}$ vi)   DT / $\overline{R}$

OR

2. a) Explain the addressing model of 8086 microprocessor.   6

    b) Interface 16 KB ROM and 16 KB RAM with 8086 microprocessor.   7

3. a) Write a ALP to transfer 10 data bytes from memory address 2000H: 1010H to 5000H: 7
        2020H.

    b) Explain the CWR format for BSR mode and I/O mode of 8255 PPI.   6

OR

4. a) Interface 7-segment display to 8086 using 8255 port and WAP to display number 0 to 9   7
        on it.

    b) Draw and explain internal architecture of 8279 PKDC.   6

5. a) Draw and explain the internal architecture of 8254 PIT.   7

    b) Interface 8254 PIT with 8086 from address 70H. and WAP to generate square wave of   7
        2KHZ. 8086 operates at 5MHZ and 8254 operates of 1 MHZ.

OR

6. a) Draw and explain internal architecture of IC 8259 PIC.   7

    b) Explain all ICW'S of 8259 PIC.   7

7. a) Draw and explain maximum mode of 8086 microprocessor. **7**

b) Draw and explain architecture of 8237 DMA. **6**

OR

8. a) Draw and explain interfacing of 8087 NDP with 8086. **7**

b) Explain closely coupled and loosely coupled microprocessor system. **6**

9. a) Draw and explain architecture of 8051 microcontroller. **7**

b) Explain the internal RAM memory organization of 8051 microcontroller. **6**

OR

10. a) Explain the Interrupts of 8051 microcontroller in detail. **5**

b) Explain following SFR's **any three.** **8**

i) PSW   ii) TMOD

iii) TCON   iv) SCON.

11. a) Explain addressing modes of 8051. **8**

b) Explain **any three** of the following instructions of 8051. **6**

i) MUL AB   ii) SWAP

iii) MOVX A, DPTR   iv) SETB P 1.5

v) DJNZ R 3, label   vi) DAA

OR

12. a) Write short note on serial communication of 8051. **4**

b) Write 8051 ALP to transmit message "YEAR 2018" serially at baud rate of 9600 Assume oscillator frequency 11.0592 MHZ. **6**

c) Explain interfacing of 4x4 keyboard matrix with 8051. **4**

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