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B.Tech
PCEL4303

6th Semester Regular / Back Examination 2016-17
MICROPROCESSOR AND MICROCONTROLLER
BRANCH: EEE
Time: 3 Hours
Max Marks: 70
Q.CODE: Z248
Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1   Answer the following questions: (2 x 10)

a) Explain about the Divide–by-Zero and Break point interrupt of 8086 processor.

b) Explain about the Minimum mode DMA signals of 8086 processor.

c) Explain about the Transmitter section signals of USART.

d) What is the address range for Register Bank-1 of On-chip RAM in 8051 microcontroller? What bit value must be put in RS1 and RS0 bit of PSW register to select this bank.

e) What is the difference between 8257 and 8237 DMA controller?

f) Explain the mode instruction control word format of USART.

g) What is the function of RL0 to RL7 signals of 8279?

h) Which port of PPI will be selected when A1=1 and A0=0 and what is the specialty of the selected port.

i) What is the addressing mode and function of the OUT DX, AL and AND AL, [BX] instruction of 8086?

j) What are the flags available in 8086 which are not available in 8085 processor?

Q2 a) Which type of bus cycle will be executed by the 8086 processor in minimum mode to copy one byte data from the offset address 2300h into the AL register?   **(2)**

b) Draw and explain about the 8086 minimum mode read bus cycle.   **(8)**

Q3 **a)** Write the delay program of 1ms using 8086 processor. Assume the frequency of the crystal becomes 15MHz connected with 8284 clock generator to applied CLK signal to the 8086 processor. **(5)**

b) Write the 8086 instruction syntax for the following. **(5)**
  I.   Instruction to load the effective address
  II. Instruction to load Extra segment
  III. Instruction to multiply the signed data
  IV. Instruction for ASCII addition
  V.   Instruction to convert Word to Double word

Q4 **a)** Explain about all the Arithmetic instructions of 8051 microcontroller. **(5)**
  b) Explain about the flags of 8051 microcontroller. Mention the bit position of flags in PSW register. **(5)**

Q5 **a)** Draw the diagram to interface one 2764 and two 6264 memory chip with 8085 microprocessor from the address 8000H and find the memory mapping. **(5)**
  b) Explain about the SIM and RIM instructions of 8085 processor. Write the sequence of instructions in order to enable RST 5.5 and Disable RST 6.5 and RST 7.5 interrupt. **(5)**

Q6 **a)** Explain about the working principle of 8255 PPI in mode-1 output mode with necessary control signals. **(5)**
  b) Draw the block diagram of 8237 DMA controller and explain about the Current and Base address and count register of it. **(5)**

Q7 Draw the block diagram of 8279 Key Board and Display controller and explain about the Keyboard and Display section of it in detail. **(10)**

Q8 **Write short answer on any TWO:** **(5 x 2)**
  a) 80386 memory management
  b) 8051 Interrupt
  c) Programmable Interrupt Controller
  d) 8086 maximum mode signals