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Total Number of Pages: 2

**B.Tech**  
**PCEL4303**

**6<sup>th</sup> Semester Regular / Back Examination 2015-16**

**MICROPROCESSOR AND MICROCONTROLLER**

**BRANCH: CSE,ELECTRICAL**

**Time: 3 Hours**

**Max Marks: 70**

**Q.CODE: W111**

**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) What is the role of ALE signal in 8085 microprocessor?
- b) What bit value will be stored in S and AC flag of 8085 flag register after adding 5AH with 45H?
- c) How many address lines are available in 8086 microprocessor and what is its maximum memory capacity?
- d) What is the role of Interrupt Flag in 8086 microprocessor and what instructions designed to Set and Reset it?
- e) How many register banks are available in 8051 microcontroller and which one is the default one?
- f) What is the role of EA and PSEN pin in 8051 microcontroller?
- g) Assume that, segment base = 2300H and offset=028AH. What is the physical address of 8086 microprocessor?
- h) Assume that the Control register of 8255 PPI is 81H. What are the hardware configurations of 8255 PPI Ports?
- i) Explain about the mode-1 of 8254 timer in brief.
- j) What is DMA? How many DMA channels are there in 8257/8237DMAC.

**Q2 a) Explain about the 8085 addressing mode with example for each. (5)**  
**b) What operating mode will be enable in 8086 microprocessor when MN/MX' = GND and what are the signals generate at pin 24 to 31. Explain about all the signals. (5)**

**Q3 a) How many Parallel I/O ports are available in 8051 microcontroller? What are the dual role assign to each? Write a program to generate a pulse of 50% duty cycle at P1.4 bit of Port1. (5)**  
**b) What is 8086 memory segmentation and what are the advantages of it? (5)**

**Q4 Draw and explain the timing diagram of STA 2500H (10)**

**Q5** a) Write a 8086 ASM program to find the smallest number from an array. (5)  
b) Explain about the registers of 8086 microprocessor which are part of the execution unit of the architecture. (5)

**Q6** a) Draw the block diagram of DMAC 8257/8237 and explain about it. (5)  
b) Explain about the mode-0 and BSR mode of PPI with the help of suitable control word format. (5)

**Q7** a) What is the function and addressing modes of the following instructions of microprocessor/microcontroller? (5)  
MOVC A, @A+DPTR  
ADD [DI+05H], CX  
MOV A, M  
MOV [SI], AL  
REP MOVSB

b) Explain about the register organization of 80386 microprocessor and explain about the dual role of segment register in this processor with respect to real mode and protected mode. (5)

**Q8** Write short notes on any two: (5 x 2)

- a) 80386 paging technique
- b) Key Board and Display Controller
- c) 8051 on chip RAM
- d) 8086 Physical address