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Total number of printed pages – 2

B. Tech.
PCEL 4303

Sixth Semester Examination – 2013
MICROPROCESSOR AND MICROCONTROLLERS

BRANCH : CSE / EEE / ELECTRICAL

QUESTION CODE : A 159

Full Marks – 70

Time : 3 Hours

*Answer Question No. 1 which is compulsory and any **five** from the rest.*

The figures in the right-hand margin indicate marks.

1. Answer the following questions : 2×10
- (a) Discuss status flag register of 8086 microprocessor.
 - (b) What factors govern the decision of bit allocation in an instruction format?
 - (c) How many machine cycles are needed to execute the instruction LDAX rp? Name them.
 - (d) Write and explain SIM instruction format.
 - (e) Name the programmable peripheral chip used as interrupt controller and name the different available modes.
 - (f) The notions of cycle stealing corresponds to _____ mode of data transfer.
 - (g) Name the serial communication standards used in practice.
 - (h) Discuss the PSW register of 8051.
 - (i) How many pins are there in 80386 microprocessor?
 - (j) There are total of _____ ports in the 8051 and each has _____ bits.
2. (a) Describe the functions of general purpose and special purpose registers of 8085. 4
- (b) Explain the operation of the following instructions and specify addressing modes :
- (i) DAA,
 - (ii) DAD B,
 - (iii) XTHL 6

P.T.O.

3. (a) Define T-state, machine cycle and instruction cycle. List all the instructions which has 5 machine cycles. 5
(b) Write an ALP for 8085 to transfer block of 10 byte of data which starts from memory address X100 into some other parts of memory which starts from Y100. 5
4. (a) Explain mode 1 operation and BSR mode of operation of 8255 using examples. 5
(b) With a neat block diagram explain the principle of operation of a DMA controller. How many channels are there in 8257 DMA controller ? 5
5. (a) Draw and explain the block diagram of 8051 microcontroller and give a comparison of 8051 family members. 5
(b) Write a program for 8051 to copy the value 55H into RAM memory locations 40H to 45H using register indirect addressing mode with a loop. 5
6. (a) Assume that the IE bit for external hardware interrupt EX1 is enabled and is edge-triggered. Explain how this interrupt works when it is activated ? How can we make sure that a single interrupt is not interpreted as multiple interrupts ? 4
(b) With the help of a connection diagram write an ALP for 8051 for sending code or data to the LCD with checking busy flag. 6
7. (a) Describe interrupt structure of 80386. 5
(b) Explain the "Protected Mode" operation of 80386. 5
8. (a) Explain BIU of 8086 using schematic diagram and explain instruction queue and pipelining also. 5
(b) Briefly describe different addressing modes of 8086 giving examples of instruction. 5