

(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 2295029

Roll No.

B.TECH

Regular Theory Examination (Odd Sem -VIII) 2016-17

ADVANCED MICROPROCESSORS AND MICRO CONTROLLERS

Time : 3 Hours

Max. Marks : 100

SECTION - A

1. Attempt all parts from the following : (10×2=20)
 - (a) What is the difference between real mode and protected mode.
 - (b) Calculate the number of memory chips needed to design 8K byte memory if the memory chip size is 1024×1.
 - (c) What is the difference between Microprocessor and Microcontroller?
 - (d) What do you mean by PSW. Explain?
 - (e) Specify the type of addressing mode used in following instructions-

MOV AX,[2050H]

IN AX,DX

- (f) How does the CPU identify between 8-bit and 16-bit operations?
- (g) What is the significance of pipelining in 8086 microprocessor?
- (h) What is the difference between NEAR and FAR procedure?
- (i) What are the applications of microcontroller.
- (j) What do you mean by watchdog timer.

SECTION - B

2. Attempt any five parts from the following eight parts: (5×10=50)
 - a) i) Write a short note on STACK and SUBROUTINE.
 - ii) Draw and discuss the internal block diagram of 8086.
 - b) What do you mean by addressing modes? What are the different addressing modes supported by 8086? Explain each of them with example.
 - c) i) Explain the execution of following instruction in 8086 a) PUSH b) SBB BX, CX

- ii) What is LOCK and REP prefix? Explain their use?
- d) Explain the interrupt response sequence of 8086? Explain its structure. What is interrupt vector table of 8086?
- e) Design an interface between 8086 CPU and two chips of 16K X 8 EPROM and two chips of 32K X 8 RAM.
- f)
 - i) What is the function 4CH under INT21H?
 - ii) Write an ALP program to find out the number of even and odd numbers from a given series of 16-bit hexadecimal numbers.
- g) How does 8051 differentiate between external and internal program memory?
- h)
 - i) Is it possible to write PSW register? In the 8051, which register bank conflicts with the stack?
 - ii) What is the difference between interrupt & polling? Write down the interrupt vector table for 8051. Also explain IE register.

SECTION - C

Attempt any two parts from the following questions: (2×15=30)

- 3. With the neat block diagram describe the internal architecture of 8086. State the function of each block shown. Explain the use of instruction queue.

- 4.
 - (i) Explain the difference between 8051 and 8096 microcontroller.
 - (ii) Explain the TMOD, TCON, PCON and SCON registers with their control word format.
- 5.
 - i) What is the purpose of BIOS in a system? What are the different types of BIOS? Explain each of them with example.
 - ii) Explain the architecture of 8096.

