

**B.Tech. SEM -IV ( Computer) 2014 Course (CBCS) : SUMMER -  
2019**

**SUBJECT: MICROPROCESSORS AND MICROCONTROLLERS**

Day : Saturday  
Date : 01/06/2019

**S-2019-2606**

Time : 10.00 AM TO 01.00 PM  
Max Marks : 60

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**N.B.:**

- 1) All questions are **COMPULSORY**.
  - 2) Figures to the right indicate **FULL** marks.
  - 3) Draw neat and labeled diagram **WHEREVER** necessary.
  - 4) Assume suitable data, if necessary.
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- Q.1**
- a) Describe instruction pipelining in 80386. (05)
  - b) Discuss Memory operand addressing mode of 80386. (05)

**OR**

- a) Draw 8086 FLAG register and explain functions of control flags. (05)
- b) Explain the process of generating 20-bit address from 16-bit address in 8086 microprocessor. (05)

- Q.2**
- a) Discuss the real mode programming model. (05)
  - b) Explain translation lookaside buffer(TLB). (05)

**OR**

Write steps for 80386DX microprocessor to enter into protected mode from real mode. Draw and explain register which is used for switching to protected mode from real mode. (10)

- Q.3**
- a) Draw and explain block diagram of 8254. (05)
  - b) Differentiate between asynchronous and synchronous serial communication. (05)

**OR**

Draw and explain in detail block diagram of 8259 PIC. (10)

- Q.4**
- a) Explain the concept of multi-core architecture with the example of real time application. (05)
  - b) Enlist the characteristics of i5 Processor. (05)

**OR**

- a) Explain how branch prediction affects execution speed in Pentium processor. (05)
- b) Enlist properties of dual core processors. (05)

**P. T. O.**

- Q.5 a)** Explain serial port control register (SCON) of 8051 microcontroller. State direct address of SCON. (05)
- b)** Explain following addressing modes of 8051 microcontroller. (05)
- i) Immediate addressing mode
  - ii) Register Indirect addressing mode

**OR**

Draw and explain the block diagram of 8051 microcontroller. Enlist and explain any four special function register of 8051 microcontroller. (10)

- Q.6 a)** Estimate clock frequency and its period for the timer of 8051 whose crystal frequency is 16 MHz. (05)
- b)** Explain external data memory interfacing with 8051 microcontroller. (05)

**OR**

Discuss the need of external memory interface. Explain program memory interfacing with 8051 along with schematic representation. (10)

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