

**BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)**  
**B. Tech. Sem - III Computer Science & Engineering : SUMMER : 2025**  
**SUBJECT: MACHINE ORGANIZATION & MICROPROCESSOR**

Day : Thursday  
Date : 15/05/2025

S-25312-2025

Time : 02:30 PM-05:30 PM  
Max. Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of **CALCULATOR** is allowed.
- 4) Draw neat and labeled diagrams **WHEREVER** necessary.

- Q.1 Describe addressing modes of 8086 with suitable example. (10)  
OR  
Describe classification of pipelining in 8086. Also, explain how PUSH B instruction executed. (10)
- Q.2 Draw and explain algorithm of restoring division. Perform restoring division for given number. (10)  
Divident=10, Divisor=2  
OR  
Compare and contrast fixed-point and floating-point representations in computer arithmetic. Discuss their respective advantages and applications in computing. (10)
- Q.3 Describe various categories of micro instruction address generation techniques. Draw and explain two address field techniques. (10)  
OR  
Describe the purpose of Control Unit with neat sketch diagram and explain the organization of Hardwired control unit. (10)
- Q.4 Describe the organization and operation of cache memory in a computer system. Discuss the factors influencing cache performance, including cache size, block size and mapping functions. Explain how cache replacement algorithms impact cache efficiency. (10)  
OR  
Draw and explain direct mapping function of cache memory. (10)
- Q.5 Demonstrate the DMA and its implementation. Also, show the data transferred between memory and I/O device using DMA controller. (10)  
OR  
List and explain three board classification of external or internal or peripheral devices. (10)
- Q.6 Differentiate between UMA, NUMA and CC-NUMA. (10)  
OR  
Draw and explain concept of Instruction Pipeline (10)

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