

**BACHELOR OF TECHNOLOGY (CBCS - 2023)**  
**B. Tech. Sem-III INFORMATION TECHNOLOGY : WINTER : 2024**  
**SUBJECT: MICROPROCESSORS & MICROCONTROLLERS**

Day : Friday  
Date : 13/12/2024

W-29246-2024

Time : 10:00 AM-01:00 PM  
Max. Marks : 60

**N.B.**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Assume suitable data if necessary.

- Q.1 Describe the role of inter-process communication (IPC) in multiprocessor organizations with neat diagram. (10)
- OR**
- Q.1 Compare and contrast the internal architecture of Intel 80386 and Pentium processors. (10)
- Q.2 Describe how the MESI protocol is used in maintaining cache coherency in Intel Pentium processor. (10)
- OR**
- Q.2 Break down the floating point pipeline stages of Intel Pentium processor and explain their significance in instruction execution. (10)
- Q.3 Describe the role of pipelining in improving ARM processor performance. (10)
- OR**
- Q.3 What are the important features of ARM architecture? Also differentiate between ARM and x86 architectures. (10)
- Q.4 Define the term 'register' in context of Intel 8051 microcontroller. What are the various registers accessible in 8051? Explain in detail. (10)
- OR**
- Q.4 Summarize the interrupt handling process in 8051 microcontroller in detail. (10)
- Q.5 List the different types of AVR microcontrollers. What are the key features of the ATmega16/32 microcontroller? Explain. (10)
- OR**
- Q.5 Critique the internal architecture of the ATmega 16/32 microcontroller in terms of efficiency and versatility. (10)
- Q.6 What is Arduino Uno and Raspberry Pi Pico? List the differences between them. Name the programming languages supported by Arduino Uno and Raspberry Pi Pico. Which is more preferable language? Why? Explain. (10)
- OR**
- Q.6 Breakdown the process of setting up the Arduino IDE for programming Arduino UNO. (10)

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