Assignment No.5

Code/Sub: 2113114/Computer Organization & Architecture **Year/Sem: SE-III**
Date of Announcement: **Date of Submission:**

Course Outcome 2113114.5: Illustrate the working of I/O interfaces, I/O channels, and I/O modules using block diagram.

Q. No	Question	Bloom Level
1	You are designing firmware for a small microcontroller-based temperature monitoring system. The temperature sensor sends one byte of data every second. The developer considers using Programmed I/O to read this data. Apply your understanding of Programmed I/O to illustrate how the microcontroller would read temperature data from the sensor. Interpret the limitations of this approach in this scenario?	Apply
2	A developer is implementing a keyboard input system for a text editor. The keyboard generates data only when a key is pressed, and the system should remain responsive without wasting CPU cycles. Apply your knowledge of Interrupt-Driven I/O to illustrate how this system can efficiently handle keyboard input. Outline the steps involved and benefits over programmed I/O.	Apply

3	You are configuring a system where large image files (several MB) are being transferred from a high-speed camera to system memory. The CPU is also busy with image processing tasks and cannot be burdened with direct I/O handling. Apply your understanding of Direct Memory Access (DMA) to illustrate how this system can transfer large volumes of data efficiently without occupying the CPU. Illustrate the sequence of steps involved.	Apply