**THIAGARAJAR COLLEGE OF ENGINEERING, MADURAI 625 015.  
Department of Computer Science & Business Systems**

**semester**

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| **Course Code** | 21cb456 |
| **Course Name** | os |
| **Degree** | B.Tech |
| **Programme** | CSBS |
| **Date** | 27-04-2025 (AN) |

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| Duration | 1 hour 45 minutes | Max. Marks | 50 |

**Answer All Questions**

**Section A: Knowledge-Based Questions** *[4 x 2 = 8 marks]*

**1.** 1. What is the primary function of process scheduling in an operating system? (2 marks)

**2.** 2. What is the purpose of interprocess communication (IPC) in a computer system? (2 marks)

**3.** 3. What is the key difference between a process and a program? (2 marks)

**4.** 4. What is the main goal of operations on processes in an operating system? (2 marks)

**Section B: Comprehension & Understanding** *[3 x 6 = 18 marks]*

**5.** 1. What is the primary difference between a process and a program, and how does this distinction impact the way operating systems manage resources? (6 marks)

**6.** 2. Describe the role of process scheduling in ensuring efficient use of CPU time, and explain how it differs from process synchronization. (6 marks)

**7.** 3. Compare and contrast the characteristics of synchronous and asynchronous communication in interprocess communication (IPC) systems, highlighting their respective advantages and limitations. (6 marks)

**Section C: Application & Analysis** *[2 x 12 = 24 marks]*

**8.** 1. A system has three processes, P1, P2, and P3, with burst times of 10, 20, and 30 milliseconds, respectively. If the system uses a First-Come-First-Served (FCFS) scheduling algorithm, what will be the average waiting time for these processes if they arrive in the order P1, P2, P3? (12 marks)

**9.** 2. In a client-server system, a client process sends a request to a server process to perform a file transfer. Describe the sequence of steps involved in this interprocess communication, including the role of the operating system in facilitating this communication. (12 marks)