K. K. Wagh Institute of Engineering Education & Research
Department of Computer Engineering

A. Y.: 2023 – 2024	**Semester:** II	**Class:** SY (Computer Engg/AIDS)	**Div:** A & B

Subject: Operating Systems

Name of the Faculty: Prof. S. S. Bhandare (B), Prof. A. R. Jadhav (A/B-AIDS)

Unit 1

1. Explain types of operating systems with the help of a neat diagram
2. Explain with diagram services provided by operating systems
3. Explain systems calls. Explain communication systems calls.
4. Explain with diagram system calls generated while reading the data from one file and copying it to another file.
5. Explain process control system calls.
6. Explain dual-mode operating systems with the help of a diagram
7. Short Note :
    1. Basic shell commands with syntax
    2. Ls commands with options
    3. Switch case statements with an example
    4. Any 1 Looping statements with an example
    5. The cat command with options and operations.
8. Explain the if-else control statement in a shell script.
9. Write a shell script to find the greater number from the two given numbers
10. What are the advantages and disadvantages of distributed OS & Network OS?
11. What do you mean by RTOS what are their types?
12. Explain Security and file management service by OS.

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Unit 2

1. Explain with a diagram
    1. Process structure
    2. Process state diagram
    3. Process control block(PCB)
    4. Role of dispatcher with all types of scheduler
    5. Different types of scheduling queues involved in process scheduling
    6. Interprocess communication (IPC) with types
    7. Context switching
2. Explain CPU scheduling algorithms with a diagram
3. Demonstrate the use of FCFS to solve the following. Consider process id P1, P2, and P3 are arrived at in the ready queue. The burst time is 24, 3, and 3 respectively. Draw a Gantt chart. Find out the waiting time and average waiting time

    (Solve different types of examples based on all types of scheduling algorithms)
4. Write short notes on :
    1. Multicore programming with programming challenges
    2. Threads with multithreading models
    3. Implicit threading
    4. Thread pool, OpenMP, GCD
    5. Single-threaded and multithreaded model
    6. IPC
    7. Threading Issues
5. What are the advantages and disadvantages of FCFS and Priority Scheduling algorithms?
6. Explain multicore programming with the help of any 4 programming challenges.
7. What are the two fundamental models of inter-process communication?
8. What are the benefits of the Thread pool?
9. Differentiate between various threading models.
10. What do you mean by IPC what are the types required for communication.?
11. Compare SJF and FCFS
12. What are the criteria required for scheduling an algorithm?

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