



K. K. Wagh Institute of Engineering Education & Research, Nashik
(An Autonomous Institute From A.Y. 2022-23)

InSem Examination-I Winter2024	
Exam Seat No.:	
Academic Year:2024-2025	Semester:III
Class:SY	Program:B.Tech
Branch Code:ADS/COM/CSD	Pattern:2023
Name of Course:Operating Systems	Course Code:2301202
Max. Marks:30	Duration:1:15 Hrs.

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains 2 pages.
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.

Marks CO

Question No. 1

- 1 a) Explain any three components of systems software. Define the term system software (4) CO1
- 1 b) Explain the different elements of Assembly Language Programming. Give an example of each type? (3) CO1

Question No. 2

- 2 a) Compare between system software and application software. (4) CO1
- 2 b) Explain types of assembly language statements with an example. (4) CO1

Group OR

- 2 c) Explain the design of pass 2 assembler. (4) CO1
- 2 d) Compare between Linker and Loader (4) CO1

Question No. 3

- 3 a) Enlist the types of operating systems. Explain Distributed operating systems. (4) CO2
- 3 b) Explain process state diagram. (3) CO2

Question No. 4

- 4 a) Explain CPU scheduling criteria. (Any four) (4) CO2
- 4 b) Explain inter process communication with neat diagram. (4) CO2

Group OR

- 4 c) Consider the processes P1, P2, P3, P4 given in the below table, arrives for execution in the same order, with given Arrival Time and Burst Time. Find out total waiting time and turnaround time.(4 marks)

Process	Arrival Time	Burst Time
P1	0	8
P2	1	4
P3	2	9
P4	3	5

4 d) Enlist and explain multicore programming challenges. (Any four)

(4) CO2

..... **End of question paper**.....