# WALCHAND COLLEGE OF ENGINEERING

(Government Aided Autonomous Institute)
Visharambag, Sangli – 416415

**Second Year B.Tech. Computer Science and Engineering**
**MSE, EVEN SEMESTER, AY 2023-24**
**Operating Systems (6CS222)**

**MSE**

**PRN:** _____

Day & Date: Wednesday, 28/02/2024 Time : 04.30 pm to 06.00 pm

Max Marks: 30

**IMP: Verify that you have received question papers with correct course code, branch etc.**

**Instructions**

a) All questions are compulsory.
b) Writing question number on answer book is compulsory otherwise answers may not be assessed.
c) Assume suitable data wherever necessary.
d) Figures to the right of question text indicate full marks.
e) Mobile phones, smart gadgets and programmable calculators are strictly prohibited.
f) Except PRN anything else writing on question paper is not allowed.
g) Exchange/Sharing of stationery, calculator etc. not allowed.

| Text on the right of marks indicates course outcomes (Only for faculty use) | | Marks | |
|---|---|---|---|
| Q1 | A) | What is an Operating System? Enlist main functionalities. What is Kernel? Also draw the storage device hierarchy. | 5 | CO1 |
| | B) | Draw 'a view of OS services' and brief on the various services provided by Operating System. | 5 | CO1 |
| Q2 | A) | Write short notes on the following System Programs and also mention how they are associated with OS,<br>Editor Compiler Macro-Processor Linker Loader | 5 | CO2 |
| | B) | Enlist and discuss on the states that are associated with a Process. Mention the Process sequences from their creation to termination. Which queues are employed to support CPU scheduling? | 5 | CO2 |
| Q3 | A) | Explain working of CPU schedulers namely Long-term, Short-term and Medium-term with their purpose. Also brief on how scheduling is achieved using the three queues. | 5 | CO3 |

**B)** An Operating System uses FCFS scheduling algorithm for the following processes. Draw Gantt chart and calculate waiting time of each process and average waiting time using this algorithm when a) processes arrive in sequence P1,P2,P3,P4,P5 and b) processes arrive in sequence P4,P5,P1,P2,P3.

| Processes | CPU burst time (ms) |
|---|---|
| P1 | 7 |
| P2 | 14 |
| P3 | 6 |
| P4 | 4 |
| P5 | 8 |

***End of question paper***