

ANURAG Engineering College

(An Autonomous Institution)

II B.Tech I Semester Regular Examinations, Jan/Feb-2024

OPERATING SYSTEMS**(ARTIFICIAL INTELLIGENCE & MACHINE LEARNING)****Time: 3 Hours****Max. Marks: 60****Section – A (Short Answer type questions)****(10 Marks)****Answer All Questions**

	Course Outcome	B.T Level	Marks
1. List the services provided by operating system.	CO1	L1	1M
2. Differentiate between Process and Thread.	CO1	L2	1M
3. What is the need of Page replacement?	CO2	L1	1M
4. What the necessary conditions for a Deadlock to arise.	CO2	L1	1M
5. Name the different IPC mechanisms.	CO3	L1	1M
6. Why is a Semaphores used?	CO3	L1	1M
7. What is Virtual memory?	CO4	L1	1M
8. Distinguish between Physical address and Logical address.	CO4	L2	1M
9. Which are the functions present in File Management System Call.	CO5	L1	1M
10. List the different File allocation methods.	CO5	L1	1M

Section B (Essay Questions)**Answer all questions, each question carries equal marks.****(5 X 10M = 50M)**

11. A) Differentiate among the following types of OS by defining their essential properties.
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|-------------------------|-----------------------|-----|----|-----|
| i) Time sharing system | ii) Parallel system | CO1 | L2 | 10M |
| iii) Distributed system | iv) Real time system. | | | |

OR

- B) Explain about the Process Control Block with a neat Diagram.
12. A) Consider the following set of process with length of CPU burst time given in milliseconds:

Process	Arrival Time	Burst Time	Priority
P1	2	2	3
P2	3	3	2
P3	0	1	4
P4	4	2	1
P5	3	2	3

Draw the Gantt charts illustrating the execution of these processes using FCFS, Priority scheduling and calculate waiting and turnaround time of each process for each scheduling algorithm.

OR

- B) Explain the Resource allocation graph with deadlock in detail.
13. A) What is Critical Section Problem? What are the requirements that a critical section must satisfy?
- OR**
- B) What is Dining philosopher problem? Explain its solution with a semaphore.

14. A) Given a memory partition of 100K,500K,200K,300K and 600K in order, how would each of the First-fit, Best-fit and Worst-fit algorithms place the processes of 21K,417K,112K and 426K in order? Which algorithm makes the best use of memory? Show the diagram of memory status in each case.
- OR**
- B) Explain about paging technique with an example.
15. A) Compare and Contrast various File accessing methods in OS.
- OR**
- B) What are the methods of Free space management of a Disk.
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| CO4 | L3 | 10M |
| CO4 | L2 | 10M |
| CO5 | L3 | 10M |
| CO5 | L2 | 10M |