

Seat No. **OCT-NOV 2025 WINTER EXAMINATION****1154 B.Tech. CBCS****Sub. Name: Operating Systems****Sub. Code: 86170****Day and Date: Thursday ,04-12-2025****Total Marks: 70****Time: 10:30 AM To 01:00 PM**

**Instructions:** 1. Assume suitable data wherever necessary and mention it boldly  
2. Figures to the right indicate full marks

**Special Inst.:** 1. Question no. 6 is compulsory  
2. Solve any four questions from Q. No. 1 to Q. No. 5

**Q1) Attempt the following Questions. [15]**

- a. Define Operating System and Explain in detail Types Of Operating System. (8 Marks)
- b. Explain the following operations on process- (7 Marks)
1. Process Creation.
  2. Process Termination.

**Q2) Attempt the following Questions. [15]**

a. Consider 5 process with arrival time and burst time given below-

Process Id	Arrival time	Burst Time	Priority
P1	0	4	2
P2	1	3	3
P3	2	1	4
P4	3	5	5
P5	4	2	5

If CPU Scheduling Policy is **Priority-Non-Preemptive**. Calculate average waiting time and average turn-around time. (Higher number represent higher priority). (8 Marks)

b. Describe in detail Process States with state diagram. (7 Marks)

**Q3) Attempt the following Questions. [15]**

- a. Describe Dining Philosopher Problem along with its solution. (8 Marks)
- b. Explain Contiguous memory allocation in detail. (7 Marks)

**Q4) Attempt the following Questions. [15]**

a. Calculate number of page faults accrues if system uses First-In-First-Out (FIFO) page replacement algorithm for following given information. (8 Marks)

Reference string:- 7,0,1,2,0,3,0,4,2,3,0,3,0,3,2,1,2,0,1,7,0,1 No of Frames- 3 frames (3 pages can be in memory at a time per process)

b. Explain Direct Memory Access (DMA) and Six Step Process to Perform DMA Transfer. (7 Marks)

**Q5) Attempt the following Questions.**

**[15]**

- a. Explain concept Of Deadlock along with four Necessary condition for deadlock.  
**(8 Marks)**
- b. Explain the architecture Of Unix Operating System. **(7 Marks)**

**Q6) Write a short note on (any 2):**

**[10]**

- a. Segmentation
- b. Process Control Block (PCB)
- c. Semaphores

## **End Of Question Paper**

**Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -**

This Question Paper may be distributed for following Subjects as common code.

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- 1] (1154) B.Tech. CBCS (86170) Operating Systems Part 2 SEM 4