Seat No.

Total No. of Pages : 3

OCT-NOV 2025 WINTER EXAMINATION

1154 B.Tech. CBCS

Sub. Name: Operating System - I

Sub. Code: 79142/79430

Day and Date: Thursday ,04-12-2025 **Total Marks: 70**

Time: 10:30 AM To 01:00 PM

Instructions: **1. All questions are compulsory**
2. Draw neat labelled diagrams wherever necessary
3. Figures to the right indicate full marks

Q1) Solve following MCQ. **[14]**

i. What is an operating system?
A. interface between the hardware and application programs
B. collection of programs that manages hardware resources
C. system service provider to the application programs
D. all of the mentioned

ii. A Process Control Block (PCB) does not contain which of the following?
A. Code
B. Stack
C. Bootstrap program
D. Data

iii. What is Scheduling?
A. allowing a job to use the processor
B. making proper use of processor
C. all of the mentioned
D. none of the mentioned

iv. In Operating Systems, which of the following is/are CPU scheduling algorithms?
A. Priority
B. Round Robin
C. Shortest Job First
D. All of the mentioned

v. Semaphore is a/an _____ to solve the critical section problem.
A. hardware for a system
B. special program for a system
C. integer variable
D. none of the mentioned

vi. Banker's algorithm is used?

A. To prevent deadlock
B. To deadlock recovery
C. To solve the deadlock
D. None of these

vii. The _____ present a uniform device-access interface to the I/O subsystem, much as system calls provide a standard interface between the application and the operating system.

A. Devices
B. Buses
C. Device drivers
D. I/O systems

Q2) Attempt Any Two **[14]**

1. Define and explain Long term scheduler and medium term scheduler. **[7]**

2. Explain batch processing and multiprogramming system with neat diagram. **[7]**

3. Define Safe and Unsafe Deadlock state with the help of a diagram and explain deadlock avoidance technique (Bankers algorithm). **[7]**

Q3) Attempt Any Two **[14]**

1. Define PCB and explain PCB with neat diagram. **[7]**

2. Consider a reference string: 7,0,1,2,0,3,0,4,2,3,0,3,1,2,0 the number of frames in the memory is 3. Find out the number of page faults respective to: optimal page algorithm Page. **[7]**

3. Explain different operations of file. **[7]**

Q4) Attempt Any Two **[14]**

1. Sate types of I/O device and describe the conceptof memory mapped I/O. **[7]**

2. Explain race condition and critical section. **[7]**

3. Explain monolithic structure with neat diagram. **[7]**

Q5) Attempt Any Two **[14]**

1. Explain FIFO and shortest job first scheduling policies with the help of example **[7]**

2. Describe the concept of DMA with neat diagram. **[7]**

3. Explain multithreading with its types and state benefits of multithreading. **[7]**

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.
सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

1] (101) Bachelor of Engineering (79430) Operating System - I Part 2 SEM 4
2] (1154) B.Tech. CBCS (79142) Operating System - I Part 2 SEM 4