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| Hall Ticket No.: |  |  |  |  |  |  |  |  |  |  |

**SRINIVASA RAMANUJAN INSTITUTE OF TECHNOLOGY**

**SRIT R20**

**(AUTONOMOUS)**

III B. Tech I Sem – Continuous Internal Examinations I – Oct 2022

**OPERATING SYSTEMS**

**[R204GA05503]**

**(C**omputer Science & Engineering)

**Time: 2 hours** S**ET – 1 Max. Marks: 30**

**Answer the following questions**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Q. No** | | | **Questions** | **Unit** | **Marks** | **CO** | **Cognitive Level** |
| 1 | a) | | Define operating system. | I | 2 | CO1 | Understand |
| b) | | Draw process layout in memory. | II | 2 | CO1 | Understand |
| c) | | What is the basic function of paging? | III | 2 | CO1 | Understand |
| **UNIT- I** | | | | | | | |
| 2 | a) | | Distinguish multiprogramming and multi-tasking systems. | | 4 | CO2 | Understand |
| b) | | Illustrate the importance of security and protection. | | 4 | CO2 | Understand |
| **OR** | | | | | | | |
| 3 | a) | | Describe different operations performed by the operating system. | | 4 | CO2 | Understand |
| b) | | Explain the illusion of virtualization with a neat diagram. | | 4 | CO2 | Understand |
| **UNIT-II** | | | | | | | |
| 4 | a) | | Construct a memory layout diagram for a C program. | | 4 | CO3 | Apply |
| b) | | Write c programs that illustrate the problem of race condition. | | 4 | CO3 | Apply |
| **OR** | | | | | | | |
| 5 | a) | | Define cooperative process. Illustrate communication models for ipc with a suitable example. | | 4 | CO3 | Apply |
| b) | | Construct producer-consumer problem with a suitable example. | | 4 | CO3 | Apply |
| **UNIT-III** | | | | | | | |
| 6 |  | Given page reference string: 1,2,3,2,1,5,2,1,6,2,5,6,3,1,3,6,1, 2,4,3. Compute the number of page faults for LRU, FIFO and optimal page replacement algorithm with frame size=4. | | | 8 | CO4 | Apply |
| **OR** | | | | | | | |
| 7 |  | Illustrate continuous memory allocation with a suitable example. | | | 8 | CO4 | Apply |

**Prepared by**

Name of the Faculty: Mr. M. Narasimhulu, Assistant Professor, CSE.

Signature of the Faculty:

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| Hall Ticket No.: |  |  |  |  |  |  |  |  |  |  |

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**[R204GA05503]**

**(C**omputer Science & Engineering)

**Time: 2 hours** S**ET – 2 Max. Marks: 30**

**Answer the following questions**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Q. No** | | **Questions** | | **Unit** | **Marks** | **CO** | **Cognitive Level** |
| 1 | a) | Draw memory layout for multi-programmed system. | | I | 2 | CO1 | Understand |
| b) | Draw PCB. | | II | 2 | CO1 | Understand |
| c) | What are the differences between paging and segmentation? | | III | 2 | CO1 | Remember |
| **UNIT-I** | | | | | | | |
| 2 | a) | Explain about the dual mode operation in OS with a neat block diagram. | | | 4 | CO2 | Understand |
| b) | Illustrate operating system services with a neat block diagram. | | | 4 | CO2 | Understand |
| **OR** | | | | | | | |
| 3 | a) | Define System Call. Exemplify open system call Scenario. | | | 4 | CO2 | Understand |
| b) | Illustrate various computing environments that need OS. | | | 4 | CO2 | Understand |
| **UNIT-II** | | | | | | | |
| 4 | a) | Construct critical section problem with a suitable example. | | | 4 | CO3 | Apply |
| b) | Construct IPC for message-passing Model with a suitable example. | | | 4 | CO3 | Apply |
| **OR** | | | | | | | |
| 5 | a) | Write a C program to create a child process that display list of files in current working directory. | | | 4 | CO3 | Apply |
| b) | Draw Gantt chart and calculate average turnaround and waiting time using FCFS, SJF.   |  |  | | --- | --- | | Process | Burst | | P1 | 2 | | P2 | 5 | | P3 | 8 | | | | 4 | CO3 | Apply |
| **UNIT-III** | | | | | | | |
| 6 |  | | Given page reference string: 3, 4, 2, 1, 6, 3, 1, 5, 2, 6, 1, 2, 5, 1, 2, 3, 2, 1. Compute the number of page faults for LRU, FIFO and optimal page replacement algorithm with frame size=3. | | 8 | CO4 | Apply |
| **OR** | | | | | | | |
| 7 |  | | Demonstrate the causes of trashing with a suitable diagram. | | 8 | CO4 | Apply |

**Prepared by**

Name of the Faculty: Mr. M. Narasimhulu, Assistant Professor, CSE.

Signature of the Faculty: