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| **QUESTIONBANK(DESCRIPTIVE)**  **Subject Name with Code: OPERATING SYSTEMS (23A0511T)**  **Course & Branch: B.TECH & CSE(CS) Year& Semester: II-II**  **Regulation: RG23** | |

**UNIT - I**

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| **S.No.** | **Question** | **[BT Level] [CO][ Marks]** |
| **2 Marks Questions (Short)** | | |
|  | What is an Operating system? | L1/CO1/2M |
|  | List various types of operating systems? | L1/CO1/2M |
|  | Explain operations of operating system? | L2/CO1/2M |
|  | What do you mean by Time-sharing operating system? | L2/CO1/2M |
|  | Define distributed operating system? | L1/CO1/2M |
|  | Define Real-Time operating system? | L1/CO1/2M |
|  | List various services of operating system? | L1/CO1/2M |
|  | Define System Call | L1/CO1/2M |
|  | Explain Monolithic operating system structure | L2/CO1/2M |
|  | Write various types of User Interfaces | L2/CO1/2M |
| **Descriptive Questions (Long)** | | |
|  | Explain various functions of operating system? | L2/CO1/10M |
|  | Explain services provided by an operating System? | L2/CO1/10M |
|  | Write about system calls and types of System Calls | L2/CO1/10M |
|  | Explain various types of system programs? | L2/CO1/10M |
|  | Discuss Computing environment and its types? | L2/CO1/10M |
|  | Explain various types of operating systems? | L2/CO1/10M |
|  | Describe the history of free and Open Source Operating Systems | L2/CO1/10M |
|  | Explain types of operating system structures? | L2/CO1/10M |

**UNIT - II**

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| **S.No.** | **Question** | **[BT Level] [CO][ Marks]** |
| **2 Marks Questions (Short)** | | |
|  | What is a process? | L2/CO2/2M |
|  | What is process control block? | L2/CO2/2M |
|  | Define Inter process Communication? | L1/CO2/2M |
|  | Define Thread. | L1/CO2/2M |
|  | Explain thread Libraries? | L2/CO2/2M |
|  | Define Multiple Processor Scheduling | L1/CO3/2M |
|  | List out Threading Issues | L1/C02/2M |
|  | Define CPU scheduling. | L2/CO3/2M |
|  | What is dispatch latency? | L2/CO3/2M |
|  | What are the various scheduling criteria for CPU scheduling? | L2/CO3/2M |
| **Descriptive Questions (Long)** | | |
|  | Define Process. Explain about Process State with a Diagram? | L2/CO2/10M |
|  | Explain in detail about inter process communication | L2/CO2/10M |
|  | Explain about operations on Processes | L2/CO2/10M |
|  | Discuss Multithreading Models | L2/CO2/10M |
|  | Explain about threading issues | L2/CO2/10M |
|  | Consider the following five processes, with the length of the CPU burst time given in milliseconds. Find Average Waiting Time and Turnaround time for given process using FCFS algorithm?   |  |  | | --- | --- | | Process | Burst Time | | P0 | 5 | | P1 | 24 | | P2 | 16 | | P3 | 10 | | P4 | 3 | | L3/CO3/10M |
|  | Consider the following five processes, with the length of the CPU burst time given in milliseconds. Find Average Waiting Time and Turnaround time for given process using SJF algorithm?   |  |  | | --- | --- | | Process | Burst Time | | P1 | 5 | | P2 | 24 | | P3 | 16 | | P4 | 10 | | P5 | 3 | | L3/CO3/10M |
|  | Illustrate Round robin Algorithm with Example? | L2/CO3/10M |
|  | Illustrate Priority algorithm with Example? | L2/CO3/10M |

**UNIT – III**

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| **S.No.** | **Question** | **[BT Level] [CO][ Marks]** |
| **2 Marks Questions (Short)** | | |
|  | What is critical section? | L2/CO4/2M |
|  | Define Mutex lock | L1/CO4/2M |
|  | What is meant by monitor? | L2/CO4/2M |
|  | What is meant by Semaphore? | L2/CO4/2M |
|  | List the Classic problems of Synchronization? | L1/CO4/2M |
|  | Define Deadlock | L1/CO4/2M |
|  | What are the situations can arise Deadlock? | L2/CO4/2M |
|  | Define Mutual Exclusion | L1/CO4/2M |
|  | What are the methods to handling Deadlocks? | L2/CO4/2M |
|  | Define banker’s algorithm | L1/CO4/2M |
| **Descriptive Questions (Long)** | | |
|  | What is mean by a critical section? Explain Petersons Solution with example? | L2/CO4/10M |
|  | What is Semaphore? Explain its implementation for providing process synchronization? | L2/CO4/10M |
|  | Explain Classic problems of Synchronization? | L2/CO4/10M |
|  | What is monitor? Explain its implementation for providing process synchronization? | L2/CO4/10M |
|  | Explain briefly about deadlock detection with example? | L2/CO4/10M |
|  | Explain with an example the Banker’s algorithm for deadlock avoidance? | L2/CO4/10M |
|  | Explain briefly about deadlock prevention with example? | L2/CO4/10M |
|  | Explain Deadlock Conditions with Examples? | L2/CO4/10M |
|  | Explain the process of Recovery from Deadlock | L2/CO4/10M |

**UNIT - IV**

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| **S.No.** | **Question** | **[BT Level] [CO][ Marks]** |
| **2 Marks Questions (Short)** | | |
|  | Differentiate logical address space and physical address space. | L4/CO5/2M |
|  | What are memory allocation methods? | L2/CO5/2M |
|  | Define swapping. | L1/CO5/2M |
|  | What is paging? | L2/CO5/2M |
|  | What is virtual memory? | L2/CO5/2M |
|  | What is Demand paging? | L2/CO5/2M |
|  | What do you mean by Copy-on-write? | L2/CO5/2M |
|  | List various page replacement techniques. | L1/CO5/2M |
|  | Define Thrashing. | L1/CO5/2M |
|  | List various disk scheduling algorithms. | L1/CO5/2M |
| **Descriptive Questions (Long)** | | |
|  | Explain in detail about Paging? | L2/CO5/10M |
|  | Explain in detail about Swapping? | L2/CO5/10M |
|  | Explain in detail about the structure of page table? | L2/CO5/10M |
|  | Given page reference string with 3 Page frames: **7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1**. Compare the number of page faults using LRU, FIFO and Optimal page replacement algorithm. | L4/CO5/10M |
|  | Explain how many page faults occur using Optimal and LFU algorithms for the following reference string, with 3 Page frames: **2, 3, 2, 1, 5, 2, 4, 5, 3, 2, 5, 2** | L2/CO5/10M |
|  | Explain with an example least recently used page replacement algorithm | L2/CO5/10M |
|  | Explain in detail about thrashing. | L2/CO5/10M |
|  | Explain overview of Mass-Storage Structure | L2/CO5/10M |
|  | Compare various HDD Scheduling Algorithms | L4/CO5/10M |

**UNIT - V**

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| **S.No.** | **Question** | **[BT Level] [CO][ Marks]** |
| **2 Marks Questions (Short)** | | |
|  | What is a file and list file attributes | L1/CO6/2M |
|  | What are the various file operations? | L1/CO6/2M |
|  | What is Directory and list its operations | L1/CO6/2M |
|  | Explain Hash table | L2/CO6/2M |
|  | Write different file allocation methods | L2/CO6/2M |
|  | What is meant by file System Mounting | L2/CO6/2M |
|  | What are the goals of protection? | L2/CO6/2M |
|  | What are the principles of protection? | L2/CO6/2M |
|  | Define Access matrix | L1/CO6/2M |
|  | Explain Protection Rings | L2/CO6/2M |
| **Descriptive Questions (Long)** | | |
|  | Explain file attributes and its operations? | L2/CO6/10M |
|  | Explain various files accessing methods? | L2/CO6/10M |
|  | Explain various directory structures | L2/CO6/10M |
|  | Write about allocation methods in file system? | L2/CO6/10M |
|  | Write about Free-Space Management in detail | L2/CO6/10M |
|  | Explain goals and principle of Protection | L2/CO6/10M |
|  | Write about file system mounting | L2/CO6/10M |
|  | Explain about access matrix with a neat diagram? | L2/CO6/10M |

**Signature of the Staff:**

**Signature of Department Academic Committee Member 1:**

**Signature of Department Academic Committee Member 2:**

**Signature of Department Academic Committee Member 3:**