|  |  |  |
| --- | --- | --- |
| D:\NAAC (Anoop Tiwari)\IQAC\unnamed.png | | **SAGAR INSTITUTE OF SCIENCE & TECHNOLOGY**  **DEPARTMENT OF CSE-ARTIFICIAL INTELLIGENCE & DATA SCIENCE**  **QUESTION BANK** |
| **BRANCH** | **CSE-AIDS** |
| **SESSION** | **2023-24** |
| **SEMESTER** | **IV** |
| **SUBJECT/CODE: Operating System(AD405)** | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **S.No** | **Question** | **Bloom’s Taxonomy Level** | **Course Outcome** |
| **UNIT 1** | | |  |
| 1. | What is meant by a System call? Explain the types of system call? How does an application program use these calls during execution | 1(Remembering) | CO1 |
| 2. | What are the various services provided by Operating Systems | 1(Remembering) | CO1 |
| 3. | What is an Operating system? what are its desirable characteristics? | 1(Remembering) | CO1 |
| 4. | Discuss Various types of operating systems with an example of each? | 2(Understanding) | CO1 |
| 5. | Differentiate multitasking & multiprogramming operating systems | 4(Analyze) | CO1 |
| 6. | Define Spooling and the need for it. Explain its working with the necessary diagram | 1(Remembering) | CO1 |
| 7. | How the evolution of an operating system takes place to reach today’s operating system? | 1(Remembering) | CO1 |
| 8. | Differentiate Spooling and Buffering. | 4(Analyze) | CO1 |
| 9. | Explain the layered architecture of the operating system with an example. | 2(Understanding) | CO1 |
| 10. | Compare the following(i) Hard & Soft real-time operating system (ii) System call & System boot | 4(Analyze) | CO1 |
| **UNIT 2** | | |  |
| 1. | What is a File? What are the different file attributes and operations | 1(Remembering) | CO2 |
| 2. | What are the points to be considered in File system design? Explain link list allocation in detail. | 1(Remembering) | CO2 |
| 3. | Describe various space allocation strategies with their merits /demerits. | 2(understanding) | CO2 |
| 4. | What are the different File accessing Methods? Explain in brief? | 1(Remembering) | CO2 |
| 5. | Explain different directory structures. What kind of directory structure used in UNIX? | 2(understanding) | CO2 |
| 6. | Discuss different free space management techniques? Explain them in detail with their advantages and disadvantages | 2(understanding) | CO2 |
| 7. | Differentiate between protection and security in file system. How they are implemented? | 4(Analyze) | CO2 |
| 8. | Compare various Disk scheduling algorithms with an illustration. | 4(Analyze) | CO2 |
| 9. | Consider an ordered Disk queue with requests involving tracks 98,183,37,22,14,124,65 & 67. If the read/write head is initially at track 53. What is the total distance the Disk arm move to satisfy all the pending request for C-SCAN? | 3(Apply) | CO2 |
| 10. | Consider a disk queue with requests for I/O to blocks on cylinders 98, 183, 41, 122, 14, 124, 65, 67. The LOOK & CLOOK scheduling algorithm is used. The head is initially at cylinder number 53. The cylinders are numbered from 0 to 199.find the total head movement for both the algorithm. | 3(Apply) | CO2 |
| **UNIT 3** | | |  |
| 1. | Explain the concept of a process with its components? | 2(Understand) | CO3 |
| 2. | What is Thread ?what resources are used when a thread is created? | 1(Remembering) | CO3 |
| 3 | What do you mean by PCB?Where it is used?What are its content? Explain. | 1(Remembering) | CO3 |
| 4.. | Draw the Process state transition diagram and explain in detail? | 2(Understand) | CO3 |
| 5. | What is Scheduling ?Explain Short, medium and Long term scheduler? | 1(Remembering) | CO3 |
| 6. | Explain Preemptive and non preemptive scheduling | 2(Understand) | CO3 |
| 7. | Consider the following set of processes   |  |  |  | | --- | --- | --- | | Process | Burst Time | Arrival Time | | P1 | 3 | 0 | | P2 | 5 | 1 | | P3 | 2 | 2 | | P4 | 5 | 3 | | P5 | 5 | 4 |   Develop a Gantt-chart and calculate the average waiting time using (i)FCFS (ii) SJF (iii) Round Robin (q=1) | 3(Apply) | CO3 |
| 8. | Compare Paging and Segmentation with Example | 4(Analyze) | CO3 |
| 9. | What is Virtual memory? Explain the concept of Demand Paging? | 1(Remembering) | CO3 |
| 10. | What is meant by Thrashing ? Explain various causes of thrashing? | 1(Remembering) | CO3 |
| **UNIT 4** | | |  |
| 1. | Explain Program controlled I/O and Interrupt driven I/O. | 2(Understanding) | CO4 |
| 2. | Briefly explain Buffering and Caching. Differentiate them. | 2(Understanding) | CO4 |
| 3. | Explain critical section and critical section problem. How do you solve critical section problem? | 2(Understanding) | CO4 |
| 4. | Define deadlock. What are the necessary conditions for deadlock occurrence? | 1(Remembering | CO4 |
| 5. | Draw resource allocation graph with deadlock ? | 1(Remembering | CO4 |
| 6. | Write a semaphore solution for Dinning Philosopher's problem | 1(Remembering) | CO4 |
| 7. | How do you recover from Deadlock? Explain in detail. | 1(Remembering) | CO4 |
| 8. | Explain Binary and Counting semaphore with example | 2(Understanding) | CO4 |
| 9. | How communication takes place between two process using Inter Process Communication mechanism. | 1(Remembering) | CO4 |
| 10. | Discuss about Demand Paging | 2(Understanding) | CO4 |
| **UNIT 5** | | |  |
| 1. | What is Multiprocessor operating system? | 1(Remembering | CO5 |
| 2. | What is Distributed operating system? | 1(Remembering | CO5 |
| 3 | Discuss features of Multiprocessor Operating system | 1(Remembering | CO5 |
| 4 | Discuss the design issues of distributed operating system | 2(Understanding) | CO5 |
| 5 | Describe distributed shared memory | 1(Remembering | CO5 |
| 6 | Explain the process management in LINUX | 2(Understanding) | CO5 |
| 7 | Describe the Network operating system? | 4(Analyze) | CO5 |
| 8 | Differentiate the file system of windows and UNIX | 4(Analyze) | CO5 |
| 9 | Explain the file system in Linux? | 2(Understanding) | CO5 |
| 10 | Differentiate Network and distributed operating system | 4(Analyze) | CO5 |