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

**SRINIVASA RAMANUJAN INSTITUTE OF TECHNOLOGY**

**MODEL QUESTION PAPER**

**SRIT R19**

**(AUTONOMOUS)**

III B. Tech I Sem – Semester End Examinations – Regular – Feb 2022

**OPERATING SYSTEMS**

**[194GA05503]**

**(**Computer Science and Engineering)

**Time: 3 hours** **Max. Marks: 70**

**PART-A**

(Compulsory Question)

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| --- | --- | --- | --- | --- |
| 1 |  | | Answer the following: (10 X 02 = 20 Marks) | |
|  | a) | | Define Operating System. | |
|  | b) | | Classify Resources that is managed by OS. | |
|  | c) | | What is a thread? What are the differences between process and thread? | |
|  | d) | | What are the benefits of multithreaded programming? | |
|  | e) | | What do you mean by swapping? | |
|  | f) | | Classify Counting Algorithms for a Page Relpacement. | |
|  | g) | | Assume that size of each block in a disk is 1MB, and bit vector is 0011110011110011110111100. Find the free space in the disk. | |
|  | h) | | Classify the services provided by the I/O subsystem. | |
|  | i) | | List the goals of protection | |
|  | j) | | What are the main differences between capability lists and access lists | |
| **PART-B**  (Answer all five units, 5 X 10 = 50 Marks) | | | | |
|  | | | | |
| **UNIT-1** | | | | |
| 2 | a) | Explain the illusion of virtualization with a neat diagram. | | **[5M]** |
|  | b) | Illustrate the importance of Security and Protection. | | **[5M]** |
| (OR) | | | | |
| 3 | Illustrate operating system services with a neat block diagram. | | | **[10M]** |
|  |
| **UNIT-2** | | | | |
| 4 | What are the essential properties of critical section implementation? Explain. | | | **[10M]** |
|  |
| (OR) | | | | |
| 5 | Describe the Peterson’s solution for the race condition with algorithm | | | **[10M]** |
|  |
| **UNIT-3** | | | | |
| 6 | Illustrate Continuous Memory Allocation with a suitable example. | | | **[10M]** |
|  |
| (OR) | | | | |
| 7 | Discuss about optimal page replacement algorithm.  If the contents of reference string is: 0, 2, 1, 6, 4, 0, 1, 0, 3, 1, 2, 1 and there are four frames available in the memory then find page fault and page fault rate using optimal page algorithm. | | | **[10M]** |
|  |
| **UNIT-4** | | | | |
| 8 | Illustrate the methods implemented in an I/O hardware with suitable diagrams. | | | **[10M]** |
|  |
| (OR) | | | | |
| 9 | Illustrate various types of storage attachment with suitable diagrams. | | | **[10M]** |
|  |
| **UNIT-5** | | | | |
| 10 | Define system threat. Give example of system threats. | | | **[10M]** |
|  |
| (OR) | | | | |
| 11 | Illustrate Authentication methods in detail. | | | **[10M]** |
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