**Code No: 6EC03**　　　　　　　　　　　　　　　　　　　　　　Date: 30-July-2022 (FN)

**B.Tech II-Year II- Semester External Examination, July/August - 2022 (Supplementary)**
**OPERATING SYSTEMS (CSE and IT)**

**Time:  3 Hours**　　　　　　　　　　　　　　　　　　　　　　　**Max.Marks:75**

> ***Note:***　a)  *No additional answer sheets will be provided.*
> 　　　　　b)  *All sub-parts of a question must be answered at one place only, otherwise it will not be valued.*
> 　　　　　c)  *Missing data can be assumed suitably.*

## ANSWER ANY 5 OUT OF 8 QUESTIONS. EACH QUESTION CARRIES 15 MARKS.
### Bloom's Cognitive Levels of Learning (BCLL)

| Remember | L1 | Apply | L3 | Evaluate | L5 |
|---|---|---|---|---|---|
| Understand | L2 | Analyze | L4 | Create | L6 |

|  |  |  | BCLL | CO(s) | Marks |
|---|---|---|---|---|---|
| 1. | a) | Define Operating System. List the goals of operating system. | L1 | CO1 | [8M] |
|  | b) | List and explain different services provided by the Operating Systems. | L2 | CO1 | [7M] |
| 2. | a) | Define process and explain with a neat diagram about process states. | L2 | CO2 | [8M] |
|  | b) | Explain the significance of Process Control Block and describe its typical elements. | L2 | CO2 | [7M] |
| 3. | a) | What is critical section? Write and explain Peterson's solution for it with an example. | L2 | CO3 | [8M] |
|  | b) | Discuss Reader's-Writer's problem using semaphores. | L3 | CO3 | [7M] |
| 4. | a) | Illustrate the page-replacement algorithms　　i) FIFO ii) Optimal Page Replacement use the reference string 7, 0,1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2,1, 2, 0, 1, 7, 0,1 for a memory with three frames. | L3 | CO4 | [8M] |
|  | b) | Differentiate external fragmentation with internal fragmentation. | L2 | CO4 | [7M] |
| 5. | a) | Explain various file access methods with suitable examples. | L2 | CO5 | [8M] |
|  | b) | Discuss the Schematic view of a virtual file system with neat sketch. | L2 | CO5 | [7M] |
| 6. | a) | Describe the access matrix model used for protection purpose. | L3 | CO6 | [8M] |
|  | b) | Explain the access matrix structure employed in protection domain. | L3 | CO6 | [7M] |
| 7. | a) | Discuss the essential properties of Time sharing and Distributed systems. | L2 | CO1 | [5M] |
|  | b) | Explain process scheduling. Explain different types of schedulers. | L2 | CO2 | [5M] |
|  | c) | Discuss in detail Multi level queues scheduling technique. | L3 | CO3 | [5M] |
| 8. | a) | What is paging? Describe in detail about general method with hardware implementation of paging. | L3 | CO4 | [5M] |
|  | b) | Discuss the Indexed File allocation method with an example. | L2 | CO5 | [5M] |
|  | c) | Discuss about Direct Memory Access. | L1 | CO6 | [5M] |

-- 00 -- 00 --