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**BCA (Sem. - 4<sup>th</sup>)**  
**OPERATING SYSTEM**  
**SUBJECT CODE : BC-404**  
**Paper ID : [B0218]**

[Note: Please fill subject code and paper ID on OMR]

Time : 03 Hours

Maximum Marks : 60

Instruction to Candidates:

- 1) Section - A is **Compulsory**.
- 2) Attempt any **Four** questions from Section - B.

**Section - A**

(10 × 2 = 20)

**Q1)**

- a) What are operating system services? Explain.
- b) What is process state diagram? Explain.
- c) What is process? How it is different from thread?
- d) Define multiprogramming and multitasking operating system.
- e) Explain the difference between logical and physical address space.
- f) What is internal and external fragmentation?
- g) What is virtual memory? Explain its advantages.
- h) What are semaphores? Explain their role.
- i) Define critical section.
- j) What are various CPU scheduling criterion?

**Section - B**

**(4 × 10 = 40)**

- Q2)** What is an operating system? Explain different types of operating system with their advantages and disadvantages.
- Q3)** What are various CPU scheduling algorithms? Explain with examples.
- Q4)** What is paging? Explain hardware support for paging. How it is different from segmentation?
- Q5)** What is deadlock? Explain necessary conditions for deadlock. Explain different methods for handling deadlock.
- Q6)** What are program and system threats? How will the system be protected against these threats?
- Q7)** What is file? Explain the difference between master and transaction file. Explain various file allocation methods with their merits and demerits.

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