

**BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY &  
SCIENCE(AUTONOMOUS)**

*I–MCA I-Semester Regular Examinations (BR25), Feb - 2026*

**OPERATING SYSTEMS (MCA)**

Time: 3 hours

Max. Marks: 60

*Answer any Five Questions One Question from One UNIT  
ALL the Questions Carry Equal Marks*

<b>UNIT-I</b>		<b>Marks</b>	<b>CO</b>	<b>BL</b>
1.a)	Discuss Operating System Structures?	6M	CO1	K2
b)	Explain briefly different types of System calls?	6M	CO1	K2
<b>OR</b>				
2.a)	Explain the different functions of an operating system and discuss the various services provided by an operating system	6M	CO1	K2
b)	Distinguish between the objectives and functions of an operating system with suitable examples.	6M	CO1	K4
<b>UNIT-II</b>		<b>Marks</b>	<b>CO</b>	<b>BL</b>
3.a)	Discuss about the threads? Discuss about thread scheduling.	6M	CO2	K2
b)	Illustrate in detail Inter Process Communication?	6M	CO2	K2
<b>OR</b>				
4.a)	Illustrate inter-process communication mechanisms and discuss their importance.	6M	CO2	K2
b)	Describe the process life cycle and explain the significance of each state.	6M	CO2	K3
<b>UNIT-III</b>		<b>Marks</b>	<b>CO</b>	<b>BL</b>
5.a)	List three examples of deadlocks that are not related to a computer system environment.	6M	CO3	K1
b)	Demonstrate the critical section problems and explain synchronization solutions.	6M	CO3	K3
<b>OR</b>				
6.a)	Explain the optimistic assumption made in the deadlock-detection algorithm? How can this assumption be violated?	6M	CO3	K2
b)	Explain deadlock prevention and avoidance techniques with suitable examples.	6M	CO3	K2
<b>UNIT-IV</b>		<b>Marks</b>	<b>CO</b>	<b>BL</b>
7.a)	Compare paging with segmentation with respect to how much memory the address translation structures require to convert virtual addresses to physical addresses	6M	CO4	K4
b)	Distinguish between the internal and external fragmentation.	6M	CO4	K4

**OR**

- |      |  |    |     |    |
|------|--|----|-----|----|
| 8.a) | Implement the paging and segmentation techniques with neat diagrams. | 6M | CO4 | K3 |
| b)   | Examine the memory management strategies used in operating systems.  | 6M | CO4 | K4 |

**UNIT-V**

- |      |   | <b>Marks</b> | <b>CO</b> | <b>BL</b> |
|------|---|--------------|-----------|-----------|
| 9.a) | Explain file allocation methods in detail.  | 6M           | CO5       | K2        |
| b)   | Interpret the structure of a file system and explain different file access methods. | 6M           | CO5       | K4        |

**OR**

- |       |  |    |     |    |
|-------|--|----|-----|----|
| 10.a) | Explain file allocation techniques and discuss their advantages and disadvantages. | 6M | CO5 | K2 |
| b)    | Demonstrate the I/O management functions and explain buffering and spooling.       | 6M | CO5 | K4 |

\*\*\*\*\*