

Duration: 3hrs**[Max Marks:80]**

- N.B. :** (1) Question No 1 is Compulsory.
 (2) Attempt any three questions out of the remaining five.
 (3) All questions carry equal marks.
 (4) Assume suitable data, if required and state it clearly.

- Q. 1** Attempt any **FOUR** **[20]**
- a** Explain Goals and objectives of OS **[5]**
 - b** Differentiate between Preemptive and Non-preemptive scheduling algorithms **[5]**
 - c** Explain Resource Allocation Graph with an example **[5]**
 - d** Write in detail about Memory Management Requirements **[5]**
 - e** Discuss File access methods **[5]**
- Q. 2** **a** Discuss Producer and Consumer problem with solution using Semaphore **[10]**
b Explain different structures of Operating System **[10]**
- Q. 3** **a** What is the role of PCB? Explain the structure of PCB with its disadvantages. **[10]**
b Explain Deadlock Avoidance algorithms with example. **[10]**
- Q. 4** **a** Explain Page Replacement Strategies with suitable examples **[10]**
b Discuss in detail about Disk Scheduling Algorithms with an examples **[10]**
- Q. 5** **a** Explain Memory Allocation Strategies with suitable examples **[10]**
b Explain Five state Process model with two suspended states **[10]**
- Q. 6** Write short notes on Following **[20]**
- a** Concept of Multithreading **[5]**
 - b** Principles of Concurrency **[5]**
 - c** TLB **[5]**
 - d** File Directories **[5]**
