

Roll No. ....

Total No. of Questions : 09]

[Total No. of Pages : 01

**B.Tech. (Sem. – 4<sup>th</sup>)**  
**OPERATING SYSTEM**  
**SUBJECT CODE : CS - 202**  
**Paper ID : [A0458]**

Time : 3 Hours

Maximum Marks : 60

**Instruction to Candidates:**

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

**Section - A****Q1)****(10 × 2 = 20)**

- a) What are the two main responsibilities of an operating system?
- b) What is a bootstrap loader?
- c) What is a context switch?
- d) What is the difference between turnaround time and response time?
- e) What is CPU scheduling and why is it important?
- f) What do you mean by preempting a process?
- g) Why do processes communicate?
- h) What is critical section and why is it so called?
- i) What are the main issues in managing the main memory?
- j) What kind of memory fragmentation does paging scheme introduce?

**Section – B****(4 × 5 = 20)**

- Q2)** Explain the LRU page replacement algorithms. Why is it difficult to implement it in pure form?
- Q3)** Explain three main issues in designing a distributed system.
- Q4)** Briefly describe a deadlock prevention approach that ensures that the circular wait condition is never fulfilled?
- Q5)** Consider a system that supports the strategies of contiguous, linked, and indexed allocation. What criteria should be used in deciding which strategy is best utilized for a particular file?
- Q6)** Describe the differences among short-term, medium-term, and long-term scheduling.

**Section – C****(2 × 10 = 20)**

- Q7)** Compare various disk scheduling algorithms by taking suitable example.
- Q8)** What do you mean by virtual memory? Why is it needed? Discuss the hardware support required by the operating system to implement the virtual memory concept.
- Q9)** What is locality of references and explain its use? What is working set? What is it used for? Also discuss the working set modal in detail.

