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B.Tech. 5th Semester (CS & IT) F-Scheme  
Examination, December-2017  
**PRINCIPAL OF OPERATING SYSTEM**  
Paper-CSE-301-F

Time allowed : 3 hours] [Maximum marks : 100

Before answering the question, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after the examination.

*Note : Attempt five questions in all. Question No. 1 is compulsory and attempt one question from each unit.*

1. (a) What is system call ? Explain.  
(b) What is distributed operating system ?  
(c) Differentiate between contiguous and non-contiguous memory allocation.  
(d) What is critical section problem ?  
(e) What is polling ?

**Section-A**

2. (a) What is an Operating System ? Discuss the services provided by an operating system.  
(b) Differentiate between multitasking, multiprogramming and multithreading.

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3. What is process scheduling ? Explain different level of schedulers. Also describe the different scheduling algorithm.

**Section-B**

4. What do you mean by page replacement ? Explain the page replacement algorithm.
5. (a) Discuss Logical and Physical address space.
- (b) Consider a swapping system in which memory of the following hole sizes in memory order : 10k, 4k, 20k, 18k, 7k, 9k, 12k, and 15k. Which hole is taken for successive request of :
- (i) 12k
  - (ii) 10k
  - (iii) 9k for First-Fit, Best-Fit, Worst-Fit.

**Section-C**

6. What do you understand by file system structure ? Describe the various type of allocation method.
7. (a) What is a semaphore ? Implement the dining-Philosophers problem using semaphore.
- (b) What is deadlock ? How it is handled ?

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**Section-D**

8. (a) Explain how to transforming I/O request to hardware operation.
- (b) What are the I/O performance issue ? Explain.
9. (a) What is shell interpreter ? Explain some basic shell commands.
- (b) Describe Window NT architecture.

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