

Roll No. ....

**2218**

**B. E. 5th Sem. (I.T.)**

**Examination – December, 2013**

**PRICIPLES OF OPERATING SYSTEM**

**'E' Scheme**

**Paper : CSE-301-E**

**Time : Three hours ]**

**[ Maximum Marks : 100**

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

**Note :** Attempt any *five* questions. All questions carry equal marks.

1. (a) Differentiate between distributed and network OS. 6, 6, 8  
(b) Discuss the various operating system services.  
(c) Explain the architecture of operating system.
2. (a) What is Belady's Anomaly? Show that a page replacement algorithm that possesses the stack property cannot exhibit Belady's Anomaly. 10

- (b) What is the purpose of paging the page table? 5
- (c) Discuss the various CPU scheduling criteria. 5
3. What is a process? Describe the seven state model of process with important state transitions with the help of a diagram. 20
4. (a) Discuss the hardware support required to support demand paging. 10
- (b) Discuss the situations under which the MFU page replacement algorithm generates fewer page faults than LRU algorithm. Also discuss under what circumstances the opposite holds. 10
5. (a) Given memory partitions of 100K, 500K, 200K, 300K and 600K in order. How would each of the first-fit, best-fit, worst-fit algorithms place processes of 212K, 417K, 122K and 426K (in order). Which algorithm makes most efficient use of memory? 10
- (b) Explain the combined paging with segmentation technique. What are the advantages of combining paging with segmentation? 10
6. (a) What is Binary semaphore? With the help of Binary semaphores, implement counting semaphores. 10
- (b) What do you mean by deadlock? How can we handle a deadlock if it occurs? 10

7. (a) Explain the concept of booting from disk and bad block recovery in disk management. 10

(b) Discuss the UNIX system calls for process management. 10

8. Explain the following briefly:  $5 \times 4 = 20$

(a) Non-Preemptive Scheduling

(b) Race Condition

(c) Shell Interpreter

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