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Code No. : 31102

**VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD**  
**B.E. III (C.S.E.) Year I-Semester (Main) Examinations, Nov./Dec.-2016**

**Operating Systems**

Time: 3 hours

Max. Marks: 70

Note: Answer ALL questions in Part-A and any FIVE from Part-B

**Part-A (10 × 2 = 20 Marks)**

1. Distinguish between a system call and system program.
2. What is a thread? List the benefits of threads.
3. What is Belady's anomaly? Which page replacement algorithm suffers from Belady's anomaly?
4. Consider the following segment table and find the physical address for the logical address given as 0,430 : 3,400

Segment	Base	Length
0	290	600
1	2300	14
3	1327	580
4	1952	96

5. Why do *Solaris*, *Linux*, and *Windows XP* use spinlocks as a synchronization mechanism only on multiprocessor systems and not on single-processor systems?
6. List the issues that need to be addressed while preempting the resources to deal with deadlocks.
7. Consider a disk queue with I/O requests for the blocks on cylinders: 98, 183, 37, 122, 14, 124, 65, 67 and the disk head is initially at 64. Compute the total number of head movement according to FCFS disk scheduling algorithm.
8. Distinguish between blocking and non-blocking I/O.
9. List the system calls related to process management in Linux.
10. Draw the structure of Unix/Linux inode.

**Part-B (5 × 10 = 50 Marks)**

11. a) What is an operating system? Discuss about the services that an OS provides to the users. [4]  
b) Calculate Waiting time and turnaround time for the following example by using SJF, SRTF and Round Robin (time slice = 2 m sec). [6]

Process	Burst Time	Arrival Time
P <sub>1</sub>	12	0
P <sub>2</sub>	2	2
P <sub>3</sub>	1	2
P <sub>4</sub>	4	1
P <sub>5</sub>	6	1

