Hall Ticket Number:

Code No. : 31525

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. (I.T.) III Year I-Semester Main & Backlog Examinations, December-2017

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 Symmetric and Asymmetric Multiprocessing.
2. Describe the role of dispatcher in OS with respect to process management.
3. What is compaction (in the context of memory management)? Under what circumstances it is not possible?
4. Consider a logical address space of 16 pages with 512 words per page, mapped onto a physical memory of 8 frames. How many bits are required in the logical address and in the physical address?
5. Define Semaphore. State the applications of Semaphore in OS
6. Summarize the necessary conditions that would occur a deadlock
7. Suppose a disk drive has 300 cylinders, numbered 0 to 299.The current position of the drive is 90.The queue of the pending requests in FIFO order is 36, 79, 15, 120, 199, 270, 89, 170. Calculate the total number of cylinder movements using FCFS disk scheduling algorithm.
8. State the advantages of the variant of Linked Allocation that uses a FAT to chain together the blocks of a file?
9. How do LINUX protect its users and files?
10. Describe the booting process in windows 7 OS.

Part-B (5 × 10 = 50 Marks)

11. a) Define Operating System? Describe the services that an OS provides to its users. [4]

    b) Draw the Gantt charts that illustrate the execution of the following five processes using **SJF** and **Preemptive Priority** (smaller number implies a higher priority) scheduling algorithms. [4]

Process	Burst Time	Priority	Arrival Time
P_1	8	3	0
P_2	2	2	2
P_3	1	1	1
P_4	4	4	1
P_5	6	2	1

    c) Compute the Turn-around Time and Waiting Time for each Process using above Scheduling Algorithms. [2]

12. a) Explain how paging supports Virtual Memory with neat diagram, explain how logical memory address is translated to physical memory address in Memory Management scheme. [5]

    b) Compute the number of page faults using **LRU** and **Optimal** page replacement algorithms for the page reference string of **1,2,3,4,1,2,5,1,2,3,5,1,4** with 3 page frames. [5]

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